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Board busyness and financial leverage: The impact of corporate tax avoidance

Vu Quang Trinh[1] | Teng Li[2] | Oanh Ha[3] | Jia Liu[4]

[1]Newcastle University Business School, Newcastle University, Newcastle upon Tyne, UK

[2]Essex Business School, University of Essex, Colchester, UK

[3]School of Banking and Finance, National Economics University, Hanoi, Vietnam

[4]School of Accounting, Economics and Finance, University of Portsmouth, Portsmouth, UK

Correspondence
Teng Li, Essex Business School, University of Essex, Colchester, UK.
Email: teng.li@essex.ac.uk

Abstract

This study investigates the impact of "busy" independent directors on corporate financial leverage. Using a sample of 3321 Chinese listed firms from 2004 to 2019, we find that firms with busier boards tend to have higher leverage, with corporate tax avoidance acting as a mediating mechanism. Supporting the reputational incentive hypothesis, busy boards discourage aggressive tax avoidance strategies that would otherwise allow managers to accumulate excess cash reserves. Consequently, these firms become more reliant on external debt financing to meet potential investment needs. Our findings highlight the role of "busy" independent directors in mitigating agency conflicts and shaping financial strategies.

KEYWORDS
board busyness, busy independent directors, corporate tax avoidance, financial leverage

JEL CLASSIFICATION
G34, L51, H21, H26

1 | INTRODUCTION

In this paper, we examine and provide further insights into the potential role of "busy" independent directors (IDs) in corporate financial leverage and its underlying mechanisms. The appointment of IDs is purposeful, as they are expected to play a fiduciary role in strengthening the independence of the board of directors and its ability to mitigate agency problems by effectively monitoring and advising on management's decision-making and strategic

implementation (Adams et al., 2018; Bernile et al., 2018; Estélyi & Nisar, 2016; Frijns et al., 2016; Li et al., 2022). However, some researchers have portrayed IDs as token appointees in Chinese firms because they may have hidden private relations with senior executives (i.e., CEOs) who employ them on the board to show ceremonial compliance with stock markets' mandatory requirements (Wu & Dong, 2021). Therefore, they may not be able to enhance the board's independence and efficiency by questioning management's decision-making and thus add little value to the firm they serve (Jiang & Kim, 2015, 2020; Liu et al., 2015).

Nevertheless, previous literature has argued that firms are likely to recruit IDs who may provide the board with valuable resources to safeguard the functioning of the firm. For instance, when choosing an ID, firm managers strategically employ former or incumbent government officials to build vital political patronage, such as fiscal subsidies, tax deductions, and governmental contracts, or assistance in escaping regulatory punishments and lawsuits (Hu et al., 2020; Li & Guo, 2022; Wang, 2015). Firms may also select IDs from peers' top management teams because they have developed significant social networks or possess relevant expertise, background, and work experience that can help the firm acquire critical industry insights and growth prospects (Wang, 2015; Wen et al., 2020). Accordingly, it is unsurprising that more experienced and reputable IDs are in great demand, often holding multiple directorships across different firms and thus become "busier" than others. Indeed, previous research has documented mixed findings from two opposing theoretical perspectives on the influence of IDs' directorship multiplicity on firm decision-making and economic consequences (see Andres et al., 2013; Cashman et al., 2012; Chakravarty & Rutherford, 2017; Elyasiani & Zhang, 2015; Ferris et al., 2003; Fich & Shivdasani, 2005; Trinh et al., 2021).

On one hand, a stream of research posits the "*busyness, or too-busy-to-serve" hypothesis*, suggesting that due to time and attention constraints, busy IDs may be unable to devote sufficient time, effort, and attention to acquiring relevant information and knowledge about the "home" firms they serve. Consequently, they are less likely to fulfill an effective role in monitoring and advising on managerial behaviors, which can be detrimental to shareholder value (see Andres et al., 2013; Cashman et al., 2012; Ferris et al., 2003; Fich & Shivdasani, 2006). *On the other hand*, another stream of research highlights the "*reputational incentive" hypothesis*, which suggests that an ID can become busier than others because they have accumulated sufficient experience, business acumen, expertise, skills, and networking ability. Therefore, they are supposed to have a higher social reputation and thus be more motivated to enhance a board's efficiency in supervising and directing managerial decision-making processes to protect and enhance shareholders' interests (see Chakravarty & Rutherford, 2017; Elyasiani & Zhang, 2015; Masulis & Mobbs, 2014; Trinh et al., 2019, 2020). Extending this line of academic inquiry, our study aims to deconstruct the phenomenon of "busy" IDs, or board "busyness," by exploring its association with firms' debt financing decisions and examining a creative accounting channel, that is, corporate tax avoidance (CTA), which mediates such a relationship.

We connect the controversial views of busy IDs and boards with firms' leverage policies for three main reasons. *Firstly*, identifying the determinants and consequences of firms' debt financing decisions, or the "capital structure puzzle," has been a classic empirical inquiry over the last decades (George & Hwang, 2010; Myers, 1984). External debt is a critically important financial resource, representing an indispensable part of capital structuring with significant real effects on a firm's daily operations and strategy implementation (Dang et al., 2022). It is also emphasized that firms (borrowers) are obliged to regularly pay predetermined interest and repay the principal to the lenders on time. Overuse of external debt, however, may lead borrowers into financial distress or even bankruptcy if their operational plans and profitability targets fail to meet their liabilities. Therefore, understanding what drives and motivates firms' decisions about leverage levels is critical for academics, shareholders, managers, lenders, and many other stakeholders. *Secondly*, prior studies have provided mixed evidence, mainly through trade-off and pecking order theories, to explain firms' financial leverage decisions (see Kumar et al., 2017; Martinez et al., 2019 for a review). For example, a firm's financial leverage ratio and adjustments to its overall capital structure should be determined by a range of factors, including but not limited to tax-deduction advantages, refinancing costs, and bankruptcy costs (Dang et al., 2022; Danis et al., 2014; Morellec et al., 2012). Indeed, the mixed empirical findings are still open to further theoretical discussion.

Thirdly, extant corporate governance research adopting agency theory consistently suggests that financial leverage can be utilized as a disciplinary tool to mitigate managerial entrenchment and agency problems, thereby enhancing corporate governance capability (Chang et al., 2014; Mande et al., 2012). As discussed above, debt issuance increases firms' liabilities and contractual obligations to repay a certain amount of interest and principal to lenders. Therefore, managers who are concerned with their career prospects will endeavor to achieve more successful investments and profitable projects to ensure adequate cash flows to fulfill these contractual requirements. After resolving the liability, less cash remains within the firm, reducing the opportunities for managers to extract shareholders' wealth to satisfy their personal interests (Jensen, 1986). As a prominent component of the board of directors, the effects of IDs on debt or equity financing decisions have been extensively examined in prior research (Anderson et al., 2004; Chakravarty & Rutherford, 2017; Fields et al., 2012). For example, the literature shows that the number and proportion of IDs on the board of directors (Richardson et al., 2014), politically connected IDs (Hu et al., 2020), and their specific human capital and social networks can assist firms in gaining advantages in debt contracts and shaping their overall capital structure (Wang, 2015). However, although prior literature offers some evidence showing the effect of IDs' characteristics (e.g., knowledge, expertise, social networks, and political affiliations) on corporate financial decisions, the relationship between IDs' "busyness" attribute and firms' use of debt as an external monitoring tool remains an empirical inquiry (see Chakravarty & Rutherford, 2017; Richardson et al., 2014).

In this study, we conjecture that given the peculiarity of the Chinese business and market settings, IDs sitting on multiple boards can affect firms' financial leverage levels through two mechanisms simultaneously. *Firstly*, according to resource-dependency theory, an ID might be invited to join the board of directors of multiple firms and become busier than other peers because of their professional specialism in respected fields and personal reputation in a particular industry (e.g., academics, professors, experienced lawyers, senior executives of other firms, retired government officials, and former leaders of industrial associations). These busy directors with multiple board seats are highly concerned about their social identity and personal reputation and thus are more likely to use their mandated managerial expertise, experience, and networks to facilitate managerial access to debt finance (Chakravarty & Rutherford, 2017). *Secondly*, reputation-concerning IDs might have more incentives to convince the board members to take on more external debt as a disciplinary tool to obviate agency issues. Managers are likely to engage in self-serving, opportunistic, excessive risk-taking behaviors, and unethical activities at the expense of shareholder wealth. Preventing and curtailing these agency problems is critically important because they are liable to damage the firm's brand image and, thus, the ID's personal reputation (Chen et al., 2019; Jiang & Kim, 2015).

We test our conjecture using an unbalanced sample of 27,629 firm-year observations of 3321 Chinese listed firms over the period of 2004–2019. As expected, we find a statistically significant and positive association between board "busyness" (when a board has more "busy" IDs) and corporate debt levels. This indicates that firms with board busyness are more likely to engage in policies that create higher financial leverage. Consistent with prior studies (e.g., Anderson et al., 2004; Fields et al., 2012), the results suggest that "busy" IDs, given their social identity, special expertise, and accumulated industry experience in accounting, finance, auditing, and law, as mandated by the CSRC, might be more motivated to utilize external debt as a disciplinary tool of external monitoring, thus preventing managerial opportunism and other agency problems.

We further document strong evidence regarding a possible underlying channel (i.e., CTA), which can mediate the association between the busy attribute of IDs and debt financing decisions. As discussed earlier, busy IDs tend to have a highly socially respected identity and a certain reputation in particular fields in the Chinese context. Therefore, they are supposed to avoid aggressive risk-taking and socially undesirable activities, such as CTA, which may destroy their reputation if revealed to the public (Chen et al., 2019; Jiang & Kim, 2015; Minnick & Noga, 2010). However, given the potential of financial leverage to lead firms into financial distress and expose them to default risks, proactive CTA is frequently exploited to maintain an adequate level of free cash flow (Ayers et al., 2018; Goh et al., 2016; Richardson et al., 2016).

To examine if board "busyness" can be linked with either (both) firms' CTA engagement or (and) their debt financing decision, we use the four-step mediation model of Baron and Kenny (1986) and confirm that firms with

"busy" IDs are less likely to engage in CTA activities, resulting in managers holding fewer cash reserves for future investment and growth opportunities. As a result, managers may be forced to use external financing such as debt, which is also preferred by the board for mitigating agency problems, as discussed above. As discussed in prior studies, the prominent social position and reputation of "busy" IDs may provide the board with communication channels and connections to financial institutions or other entities that can facilitate the procurement of favorable debt terms (Chakravarty & Rutherford, 2017). This may be especially true in the immature Chinese market (e.g., weak investor rights protections, inefficient regulatory enforcement, and low penalties for contract breaches) as its debt market is still underdeveloped. In general, "busy" IDs are supposed to recognize the trade-off between the risks of engaging in CTA and the costs of rising leverage. If they induce managers to engage in less CTA, the cash flows available to managers will decrease; consequently, managers may agree to increase leverage to finance the firm's operations.

We undertake several robustness tests to validate our baseline findings. Specifically, we employ alternative CTA measures, including long-run CTA, and generate consistent results on the mediating effect of CTA on the relationship between board "busyness" and debt-financing levels. We acknowledge that our findings may suffer from potential joint endogeneity problems of debt, CTA, and busy IDs. For example, while busy IDs may mitigate CTA behavior and increase firms' debt, firms with lower CTA behavior and/or higher debt may also prefer hiring busy IDs. Following previous studies (e.g., Bradley & Chen, 2011; Chakravarty & Rutherford, 2017; Dittmar & Mahrt-Smith, 2007), we initially resolved this issue by lagging the board composition variables by 1-year in our primary analyses to determine the directions of causality for our results. We then further mitigated endogeneity issues and addressed any potential self-selection biases by adopting difference-in-differences (DID) model specifications, two-stage least squares (2SLS) estimation (building a new "board quality index" variable), Heckman two-stage regressions, and propensity score matching (PSM) estimation. These methods serve as necessary robustness checks to validate our primary research findings. Our main results remain robust after applying endogeneity and selection bias treatments.

Our contributions to the literature are twofold. *Firstly*, our study enriches the research on corporate governance and capital structure by revealing a significantly positive association between IDs' (board's) "busyness" attribute and corporate financial leverage and exploring CTA as one underlying mechanism. Recent evidence has demonstrated significant relationships between corporate governance mechanisms (e.g., board compositions, managerial entrenchment, shareholder rights) and external debt levels, but documented mixed results (e.g., Kieschnick & Moussawi, 2018; Setia-Atmaja et al., 2009). We demonstrate a significantly positive relationship between the presence of busy IDs (or board busyness) and financial leverage through their impact on reducing firms' CTA engagement. We demonstrate that reputational incentives may principally motivate busy IDs with multiple board seats to curtail managerial entrenchment by increasing leverage and lessening aggressive CTA activities. *Secondly*, while the impact of board busyness has been investigated in prior literature (e.g., Chakravarty & Rutherford, 2017; Elyasiani & Zhang, 2015; Ferris et al., 2003; Fich & Shivdasani, 2005), its connections with CTA engagement remain underexplored. To fill this gap, we provide robust evidence that "busy" boards can effectively reduce aggressive CTA behavior, further confirming the reputational incentive hypothesis of busy IDs in the literature. Accordingly, our research links the fiduciary role of IDs with their home firms' creative accounting maneuvers (e.g., CTA) and external financial leverage. CTA appears to be an underlying channel through which "busy" IDs can exert significant influence on a firm's debt policies. That is, the impact of board "busyness" on rising leverage utility can be activated indirectly via its role in reducing CTA activities, which in turn affects the amount of cash reserves (i.e., internal funds) managers try to retain within the firm for various private purposes.

The remainder of our study is structured as follows. Section 2 specifies the research settings of the study, reviews relevant literature, and proposes hypotheses based on a theoretical lens. We elucidate our research design in Section 3. In Section 4 and Section 5, we report our empirical results and robustness checks, respectively. Section 6 provides further discussion, political implications, and the limitations of our study.

2 | RESEARCH BACKGROUND AND RELATED LITERATURE

2.1 | Institutional background: Corporate governance and tax policy reforms in China

Our study focuses on the potential role of "busy" IDs in influencing corporate debt financing (and tax-related) decisions of Chinese listed firms because China offers a suitable and unique setting for examining the busyness-debt nexus for three major reasons. *First*, due to the immaturity and volatility of capital markets, the erratic behavior of investors, the lack of efficient shareholder interest protection, and concentrated ownership structures in China, a large proportion of Chinese listed firms rely on external debt (after consuming internal resources) rather than equity issuance to finance their operations and investment opportunities (Jiang & Kim, 2015). Therefore, it is important to gain a deeper understanding of the determinants and factors that influence financial leverage in Chinese listed firms. *Second*, despite the growing body of research on Chinese IDs, empirical findings are largely controversial. Some studies provide evidence suggesting that Chinese IDs may be unable to fulfill an efficient supervisory or monitoring role but can still exert a beneficial advisory influence on management (Chen & Keefe, 2020; Chen et al., 2019; Hu et al., 2020; Liu et al., 2015; Zhu et al., 2016). In China, given the limited number of qualified IDs and strict regulation of ID appointments, it is not unusual to see one ID hold multiple directorships across different firms simultaneously.

Third, the corporate governance codes and regulations formulated by the Chinese authorities in 2014 mandated that a qualified ID can only accept a maximum of five directorships concurrently (Jiang & Kim, 2020). Specifically, as stipulated by the China Securities Regulatory Commission (CSRC), a board must have a minimum of five and a maximum of nineteen directors. Since June 30, 2003, one-third of a company's directors must be IDs.[1] Annual shareholder meetings are compulsory, and directors are elected for 3-year terms with the option of serving two consecutive terms. Boards of directors must meet twice a year, and, more importantly, qualified IDs are not permitted to accept more than five directorships concurrently. Consistent with corporate governance codes established in Western nations, IDs have to attend board meetings, implement shareholder resolutions, make significant operational and investment decisions (e.g., capital expenditures and acquisitions), major financial decisions (e.g., budgeting, raising capital), and evaluate the performance of their firm's senior management. IDs are also required to chair all committees except the corporate strategy committee (Jiang & Kim, 2020). Meanwhile, the CSRC defines the ID's fiduciary duty, specifying their legal responsibility to monitor potential "tunneling" actions by large controlling shareholders and corporate managers to protect the interests of powerless minority shareholders (Jiang & Kim, 2020; Jiang et al., 2020).

IDs are expected to oversee their home firms' taxation policies (Wen et al., 2020). Over the past decade, China has introduced several corporate income tax reforms, with the most notable being the New Enterprise Income Tax Law, promulgated on March 16, 2007. Effective January 1, 2008, all corporations in China became subject to a uniform income tax rate of 25%, reduced from 33%. Despite this reform, previous studies have evidenced that Chinese firms actively engage in tax avoidance using various creative financial accounting techniques, such as understating sales revenues, using discretionary accruals to manage earnings, applying accelerated depreciation rates, and shifting income through transfer mispricing, among others (Cai & Liu, 2009; Chen et al., 2022; Lin et al., 2014; Lo et al., 2010; Shevlin et al., 2012; Wen et al., 2020). To address the unethical practices, the governance code mandates that at least one ID should possess expertise in accounting, auditing, or finance, and another in corporate law. Furthermore, qualified IDs should have established certain reputations or reputable standing within their industries (Chen et al., 2019; Jiang & Kim, 2020). In a nutshell, these mandatory requirements aim to prevent IDs from becoming "token" members, which could compromise their effectiveness in supervising managerial decisions and safeguarding shareholder interests. However, despite their well-intentioned design, the extent to which these regulations improve corporate governance and relevant decision-making remains underexplored.

[1] IDs cannot (i) be related to the manager, (ii) be one of the top 10 shareholders or hold more than 1% of the company shares, or (iii) have a business relationship with the firm.

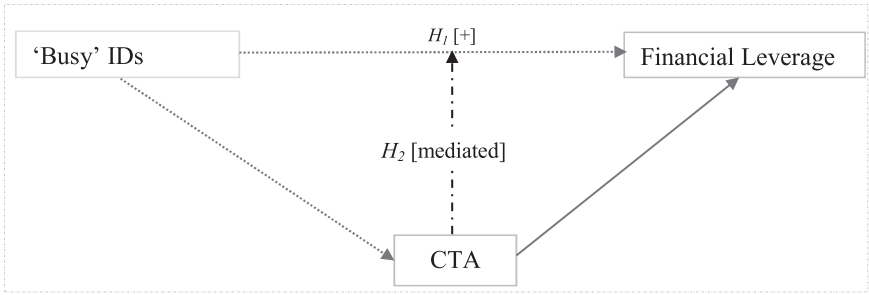

FIGURE 1 Theoretical model.

2.2 | Theoretical propositions and hypothesis development

In the existing literature, there are two opposing theoretical propositions regarding the influence of IDs' multiple directorial appointments on the board's capability to supervise and counsel managerial behaviors and firm performance (Cashman et al., 2012; Fich & Shivdasani, 2006; Sharma, 2011; Trinh, 2022). One stream of research adopts the "busyness" or "too-busy-to-serve" hypothesis and argues that a board consisting of more busy IDs negatively affects firm performance (Fich & Shivdasani, 2006). This is because IDs with multiple directorships are likely overburdened, and therefore, they are unlikely to devote sufficient time, effort, and attention to obtaining adequate information, fully understanding a firm's internal operations, attending board meetings, and performing their duties effectively (Ferris et al., 2003; Trinh, 2022).

Conversely, another stream of research adopts the "*reputational incentive" hypothesis*, contending that only highly experienced candidates are likely to be appointed as external IDs by multiple firms. Therefore, IDs' directorship multiplicity is expected to reflect their extensive experience and expertise in particular industry sectors and their embeddedness in wider social networks (Chakravarty & Rutherford, 2017; Elyasiani & Zhang, 2015; Harris & Shimizu, 2004; Trinh, Aljughaiman, & Cao, 2020). Accordingly, IDs serving on multiple boards across firms can establish economic connections or act as conduits for information transmission between these firms. Consequently, firms can benefit from the social and human capital brought by busy IDs, enhancing the board's supervisory and advisory capabilities. From this vein, having more busy IDs on board can contribute to firm decision-making quality and firm value (Chakravarty & Rutherford, 2017; Harris & Shimizu, 2004).

In this study, we examine the effect of "busy" IDs on corporate financial leverage and the mediating effect of CTA following the four-step mediation model of Baron and Kenny (1986) to establish two main hypotheses (see Figure 1). Specifically, the first hypothesis (H_1) examines the relationship between busy IDs and debt levels, and the second hypothesis (H_2) demonstrates the mediating effect of CTA on the association described in H_1. We present our detailed hypotheses below and provide further discussion in the next sections.

2.2.1 | The effect of busy IDs on corporate financial leverage

To guard against opportunistic managerial behavior, firms' boards of directors can establish strong internal governance mechanisms (Fama & Jensen, 1983; Shleifer & Vishny, 1997) by employing external monitoring tools, such as contracting for short- and long-term debts (Ivashina et al., 2008; Mande et al., 2012). Following arguments in extant literature, there are two distinct views concerning the possible associations between "busy" IDs and firms' leverage policies. Specifically, research adopting a substitutive view argues that a firm's board with more busy IDs exhibits a higher ability to monitor, supervise, and advise on managerial decisions and behaviors (Bathala et al., 1994; Grier & Zychowicz, 1994; Harford et al., 2008). Therefore, better-governed firms may require fewer external monitoring

instruments, such as financial leverage. In contrast, a complementary view argues that the competence of a board with more (busy) IDs in alleviating agency problems might need to be strengthened by external monitoring tools (i.e., financial leverage) to diminish opportunistic and self-serving managerial behaviors (Fama & Jensen, 1983; Harris & Raviv, 1991; Rajan & Winton, 1995; Zhou et al., 2021). We conjecture that these conflicting arguments may arise from different contextual or organizational factors influencing the relationships between a firm's internal governance capability and the utility of leverage as a monitoring tool.

Given the unique context of China, where corporate governance regulations mandate a limited number of directorships an ID can accept and specify the qualifications and work experience that they must possess. IDs with multiple board seats in public firms should be better aware of the consequences of holding multiple directorships on their expected monitoring and advising abilities. In this study, we do not contest prior claims that IDs in China are token appointees who add little value to the firms they join (Jiang et al., 2020; Liu et al., 2014). Instead, we build upon this by asserting that busy IDs can still provide value through their expertise and position in relevant industries, gained from their multiple directorships. For example, on several occasions, when making debt financing decisions, busy IDs can employ their managerial expertise to recommend and facilitate managerial access to external debt finance and mitigate aggressive risk-taking activities liable to damage companies' reputations (Chen et al., 2019; Jiang & Kim, 2015). Therefore, we anticipate that the reputational effect may dominate the busyness effect in Chinese listed firms.

Accordingly, we hypothesize a positive relationship between busy IDs (or board busyness) and debt levels for two reasons. *Firstly*, the pecking order theory implies that debt is preferable to equity under normal conditions (Chen & Chen, 2011; Sánchez-Vidal & Martin-Ugedo, 2005). This is because greater debt usage can reduce the average cost of capital due to the lower cost of debt, enabling firms to achieve their ultimate financial goal of value maximization. Additionally, given that busy IDs are recruited to protect and increase shareholders' wealth and enhance governance quality, they are more likely to advise boards to increase leverage to support internal governance mechanisms and counteract agency problems (Chakravarty & Rutherford, 2017; Trinh, 2022). This effectively binds managers to act in shareholders' interests and increases firm value (see Firth et al., 2008; Huang & Song, 2006). *Secondly*, firms with busy IDs on their boards may prefer to finance themselves with debt, as Trinh et al. (2021) indicate that these IDs can assist firms in obtaining lower interest rates given their extensive experience and commercial expertise. Additionally, Chakravarty and Rutherford (2017) demonstrate that busy IDs are seriously concerned about their reputations and frequently advise managers to implement anti-takeover provisions to avert hostile takeovers. Consequently, lenders are more willing to relax loan terms for businesses whose board's risk averse approach helps prevent hazardous management strategies (Chakravarty & Rutherford, 2017). Accordingly, we propose the following hypothesis in its alternative form:

Hypothesis 1. Firms with busy IDs exhibit a higher level of debt financing.

2.2.2 | The mediating effect of CTA on the association between busy IDs and financial leverage

Prior studies show that managers tend to strategically engage in CTA activities to minimize income tax payable to the government tax authority (Lin et al., 2018; Tang, 2020). On the one hand, CTA enables businesses to avoid making payments to outsiders, thereby retaining more of their earnings for future investment opportunities or mitigating possible liquidity or credit risks in the event of financial distress. As such, CTA can potentially increase shareholder value (see Hasan et al., 2021; Phillips, 2003; Tang, 2019). On the other hand, however, CTA involves complicated adjustments to a company's financial accounts by exploiting the flexibility of existing accounting standards. For instance, managers may use pretexts to manipulate financial statements by changing sales recognition methods to understate revenues and income, using discretionary accruals to manipulate earnings, adopting escalating depreciation policies, or shifting income through transfer mispricing, among other tactics (Croker & Slemrod, 2005; Desai & Dharmapala, 2006). Due

to increasingly stringent tax regulations, legislation, and penalties imposed on seemingly benign CTA activities, managers can only avoid tax payables by engaging in more complex and covert activities (Richardson et al., 2013; Tang, 2019). This increasing complexity of CTA actions is highly likely to escalate agency conflicts between managers and shareholders (and between insiders and outsiders), as managers have to exacerbate information asymmetry to conceal their secretive CTA activities (Lim, 2011; Richardson et al., 2014).

We argue that the board of directors might not be able to eliminate CTA actions, but they can ultimately influence whether and to what extent a CTA strategy can be implemented (Richardson et al., 2014; Wen et al., 2020). Desai and Dharmapala (2006) contend that because CTA is opaque and complex, managers are more likely to engage in rent extraction in the process. However, the board plays a critical monitoring role in preventing extreme CTA by opportunistic management. For example, Lanis and Richardson (2011) find that more independent boards are likely to deter CTA by hiring more IDs to increase board independence and monitoring efficiency. Boards with a greater proportion of IDs are less likely to engage in CTA and corporate fraud in general. Moreover, CTA engagement and debt financing decisions can both impact firms' cash flows and subsequent operations and economic outcomes (DeAngelo & Masulis, 1980; Graham & Tucker, 2006; Lim, 2011, 2012; Richardson et al., 2014). Specifically, DeAngelo and Masulis (1980) propose a theory of trade-off optimal capital structure, suggesting that firms should maximize total tax deductions by establishing an optimal mix of an acceptable level of CTA and debt (interest) deductions. Arguably, due to the aggregated cost of using debt (including commission fees, default risks, financial distress, and bankruptcy costs), corporate managers may maximize the use of CTA within the legally acceptable confines of the government's tax allowance before increasing leverage.

On the other hand, Graham and Tucker (2006) and Lim (2011) show that firms use less debt if they engage in more CTA, which is ostensibly a substitute for using debt. Lim (2012) argues that the debt-substitution effect of CTA could increase a firm's financial slack, reduce bankruptcy costs, enhance credit quality, and lower default risk, all of which would result in a lower cost of debt and an increase in the financial leverage ratio. In addition, Wang (2011) demonstrates a negative relationship between financial leverage and CTA, where management reduces aggressive CTA activities as they take advantage of the tax shelter provided by interest expenses on debt. As a result, managers are motivated to maximize the benefits of CTA to reduce their income tax liabilities and retain more earnings for future reinvestment or other growth opportunities (Chung et al., 2019; Huang et al., 2016).

In summary, we conjecture that a reduction in CTA activities, achieved by the presence of busy boards, implies that a firm needs to pay more from retained earnings to satisfy tax obligations, resulting in a shrinkage of its free cash flow. Under these circumstances, the firm may increase debt to compensate for the shortage of internal funds. Therefore, we propose the following hypothesis in the alternative form:

Hypothesis 2. Firms with "busy" IDs exhibit a higher level of debt financing through their engagement in lower levels of CTA.

3 | DATA AND METHDOLOGY

3.1 | Sample selection and composition

To examine the relationship between busy IDs, CTA, and financial leverage, we compile data using the China Stock Market and Accounting Research (CSMAR) and Bloomberg databases. The primary sample in this study consists of 4255 listed firms on the CSMAR database. After excluding financial and utility firms, the sample includes 3321 listed firms between 2004 and 2019. The year 2020 is excluded from our sample to ensure that the ongoing COVID-19 health crisis does not influence our findings. We obtain corporate governance data such as attributes and the composition of boards of directors, ownership structure, and individual director's information from CSMAR. Tax information

and statutory tax rates are collected from the Bloomberg database. After a screening process, our ultimate sample comprises an unbalanced panel sample of 27,629 firm-year observations.

3.2 | Variable construction

Consistent with several studies, such as Richardson et al. (2014), Sharma (2011), Huang and Song (2006), Byoun (2008), and Graham and Tucker (2006), our dependent variable, corporate financial leverage, is measured by total liabilities (short-term debt plus long-term debt) over total assets (*liabilities over assets*$_{it}$). The book debt ratio is employed to measure how leveraged the firm is, as a higher ratio implies that firms utilize more debt as opposed to equity capital, indicating a higher financial leverage.

Our independent variable is busy IDs (board busyness). Following prior established literature in this field (e.g., Chakravarty & Rutherford, 2017; Trinh, Aljughaiman, & Cao, 2020), we estimate the percentage of IDs on a board who hold 3 (4 and 5)[2] or more directorships to provide alternative assessments of the effect of the board "busyness" on the firm ($\text{Board}_{\text{Busyness}_{it-1}}$). *#directorship* is the average directorship that IDs hold. *%busyIDs (cut-off 3)*, *%busyIDs (cut-off 4)*, and *%busyIDs (cut-off 5)* are estimated by the percentage of busy IDs (holding at least 3, 4, or 5 directorships, respectively). We identify board "busyness" by counting the number of directorships each ID holds each year and then calculate the average directorships held by the IDs of a given firm.

The mediating factor, CTA (*GAAP ETR*$_{it}$) is measured by effective tax rates. Specifically, it is measured by the ratio of tax expenses and pretax income. A higher value of *GAAP ETR* implies less aggressive CTA behavior (Hasan et al., 2021; Huseynov & Klamm, 2012). An alternative long-run measure for CTA includes *LCETR3* (i.e., measured by the ratio of a firm's cash payments for taxes over 3 years to the sum of its total pretax income over the same period). We include two sets of control variables identified in the literature (see, among others, Huang & Song, 2006; Richardson et al., 2014; Sharma, 2011) related to financial leverage: corporate governance and firm-level characteristics. Detailed definitions and measurements of these variables are provided in Appendix A.

3.3 | Empirical models

In this study, we adopt the high-dimensional fixed effects (HDFE) approach proposed by Correia (2016)[3]. While both HDFE and traditional fixed effects (FE) models aim to address unobserved heterogeneity in panel data, HDFE represents a significant advancement by efficiently managing multiple and potentially HDFE. Unlike traditional FE models, which typically account for one or two dimensions, HDFE can accommodate multiple FE across intricate groupings. This capability makes HDFE particularly well-suited to our large-scale panel dataset, which involves numerous groupings (Zhu et al., 2021). Using this approach, we absorb year, firm, and industry FE in our main regressions. To further address heteroscedasticity concerns, we also cluster standard errors at the firm level for the main analyses and at the industry level for robustness tests. As the primary focus of this study is to investigate the mediating role of corporate tax aggressiveness (CTA) in the relationship between a busy board and financial leverage, we follow the four-step mediation framework outlined by Baron and Kenny (1986). The corresponding equations, specified in Equations (1)–(4), are presented as follows:

Step 1: (Equation 1)

$$\textit{liabilities over assets}_{it} = \alpha + \beta_1 \text{Board}_{\text{Busyness}_{it-1}} + \text{Control}_{it} + (\textit{Year})_{it} + (\textit{Firm})_{it} + (\textit{Industry})_{it} + \varepsilon_{it} \quad (1)$$

[2] Prior literature usually chooses three directorships as the cut-off to classify busy IDs. However, in our study, we also consider four and five directorships because China's context may differ, and its CG code limits the maximum number of directorships to five.

[3] See details in https://www.scorreia.com/research/hdfe.pdf.

Step 2: (Equation 2)

$$GAAP\ ETR_{it} = \alpha + \beta_1 \text{Board}_{\text{Busyness}_{it-1}} + \text{Control}_{it} + (Year)_{it} + (Firm)_{it} + (Industry)_{it} + \varepsilon_{it} \quad (2)$$

Step 3: (Equation 3)

$$liabilities\ over\ assets_{it} = \alpha + \beta_1 \text{GAAP ETR}_{it-1} + \text{Control}_{it} + (Year)_{it} + (Firm)_{it} + (Industry)_{it} + \varepsilon_{it} \quad (3)$$

Step 4: (Equation 4)

$$liabilities\ over\ assets_{it} = \alpha + \beta_1 \text{Board}_{\text{Busyness}_{it-1}} + \beta_2 \text{GAAP ETR}_{it-1} + \text{Control}_{it} + (Year)_{it} + (Firm)_{it} + (Industry)_{it} + \varepsilon_{it} \quad (4)$$

where $Controls_{it}$ comprise all control variables. ε_{it} is an error term. In Step 4, we examine the mediating effect of CTA on the association between board "busyness" and financial leverage. Specifically, we add *GAAP ETR* (CTA) into the model of Step 1 to check whether and how the significance levels of board "busyness" variables change. If such a significance level reduces (but remains significant), we can claim a partial mediating effect. If the significance level turns insignificant, we conclude a full mediating impact of CTA.

Tables 1 and 2 report the descriptive statistics of all dependent and independent variables that are employed in this study and the correlation matrix among independent pairs, respectively. Regarding the debt financing measure (*liabilities over assets*), the statistics show that Chinese firms, on average, employ 44.7% liabilities over their total assets, with a wide min-max range from 3.9% to 123.1%. Meanwhile, the mean (median) of the main CTA measure, that is, *GAAP ETR*, is 0.176 (0.153), and its min-max range is from −0.293 to 0.822. Main board "busyness" proxies reveal that the board comprises approximately 2.2 directorships on average (*#directorship*). In addition, about 31.5%, 18.6%, and 9.8% IDs on a board are classified as busy with *cut-offs* of 3, 4, and 5, respectively. Table 2 indicates that there is no severe multicollinearity problem.

4 | RESULTS

4.1 | Tax avoidance and debt financing levels by board "busyness" interval categories

We begin our initial examination with trend analysis to test the influences of board "busyness" on CTA and debt financing. We follow the study of Chakravarty and Rutherford (2017) to partition the "busyness" measures of boards into equal increments and observe the changes in CTA (*GAAP ETR*) and debt levels (*liabilities over assets*) with each increasing increment category. In Table 3, Panel A, we break *%busyIDs (cut-off 3)* into 10% segment categories[4]. We have an interesting observation that, generally, when the percentage of busy IDs on a board increases from under 10% to up to 50%, the average *GAAP ETR* increases (or CTA reduces) from 0.174 to 0.187. Above this threshold, the average *GAAP ETR* decreases from 0.187 to 0.168. This suggests a potential nonlinear relationship. However, we have tested this

[4] *< 10%, 10%–19.99%, 20%–29.99%, 30%–39.99%, 40%–49.99%, 50%–59.99%, 60%–69.99%, 70%–79.99%, 80%–89.99%, 90%–99.99%, 100%*

TABLE 1 Descriptive statistics.

	N	Mean	p25	p50	p75	SD	Min	Max
Dependent variables								
Liabilities over assets	31454	0.447	0.271	0.439	0.604	0.229	0.039	1.231
GAAP ETR	26559	0.176	0.111	0.153	0.236	0.149	−0.293	0.822
LCETR3	16236	0.416	0.208	0.390	0.606	0.262	0.002	0.979
Board busyness proxies								
#directorship	30499	2.198	1.5	2	2.667	0.901	1	5
%busyIDs (cut-off 3)	30499	0.315	0	0.333	0.5	0.267	0	1
%busyIDs (cut-off 4)	30499	0.186	0	0.143	0.333	0.214	0	0.75
%busyIDs (cut-off 5)	30499	0.098	0	0	0.2	0.163	0	0.667
Control variables								
Ln(board size)	28415	2.161	2.079	2.197	2.197	0.203	1.609	2.708
%IDs	28415	0.368	0.333	0.333	0.4	0.053	0.25	0.571
% Shares held by board of directors	27226	0.084	0	0.0001	0.094	0.157	0	0.636
% Shares held by executives	27168	0.046	0	0.0001	0.019	0.108	0	0.543
% State ownership	30520	0.090	0	0	0.039	0.185	0	0.714
% Foreign ownership	30520	0.011	0	0	0	0.053	0	0.366
Ln(total assets)	31456	21.798	20.867	21.650	22.560	1.335	18.899	25.874
Ln(firm age)	50174	2.404	2.079	2.565	2.890	0.674	0	3.401
PPE/assets	31417	0.215	0.088	0.184	0.310	0.162	0.000	0.690
Cash/assets	31448	0.166	0.075	0.131	0.220	0.131	0.002	0.636
Intangible/assets	30419	0.040	0.012	0.029	0.053	0.043	0	0.246
R&D/Assets	15306	0.003	0	0	0.000	0.007	0	0.046
Return-on-equity ratio	24946	0.070	0.035	0.075	0.122	0.121	−0.644	0.339
Dividend distribution ratio	27913	0.421	0	0.261	0.522	0.668	0	4.743

Note: This table reports descriptive statistics of all variables employed in this study. The definitions and measurements of all variables are presented in Appendix A.

and find no significant result.[5] We further discover that the *%busyIDs (cut-off 3)* increase the debt levels more strongly when the board includes at least 40% of busy IDs.

In Table 3, Panel B, we demonstrate the changes in CTA (*GAAP ETR*) and debt (*liabilities over assets*) when a firm adds an additional busy ID (with a cut-off of 3) to the boardroom. We create a separate category by breaking the number of busy IDs (*#busyIDs (cut-off 3)*) present on each board into six segment categories (from 1 to 6 IDs, as the data shows a max of 6 busy IDs in our sample). We find that the *GAAP ETR* and *liabilities over assets* steadily and consistently increase with every incremental addition of a busy ID (up to 5) to the board. This becomes clearer when the board has at least three or four busy IDs.

[5] Tables will be provided upon request. The insignificant results may be due to the limitation on the number of directorships (5) held by an independent director in China.

TABLE 2 Correlation statistics among independent variables.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. #directorship																		
2. %busyIDs (cut-off 3)	0.855*																	
3. %busyIDs (cut-off 4)	0.840*	0.734*																
4. %busyIDs (cut-off 5)	0.748*	0.515*	0.697*															
5. Ln(board size)	−0.052*	−0.045*	−0.037*	−0.033*														
6. %IDs	0.027*	0.023*	0.014*	0.013*	−0.463*													
7. % Shares held by board of directors	0.048*	0.033*	0.022*	0.028*	−0.199*	0.113*												
8. % Shares held by executives	0.043*	0.032*	0.020*	0.022*	−0.164*	0.117*	0.792*											
9. % State ownership	−0.129*	−0.118*	−0.094*	−0.083*	0.202*	−0.134*	−0.247*	−0.195*										
10. % Foreign ownership	−0.037*	−0.028*	−0.024*	−0.021*	0.012*	−0.020*	−0.004	−0.013*	−0.041*									
11. Ln(total assets)	0.160*	0.153*	0.143*	0.109*	0.168*	0.082*	−0.156*	−0.144*	0.003	−0.054*	1							
12. Ln(firm age)	0.170*	0.146*	0.133*	0.114*	−0.088*	0.070*	−0.111*	−0.089*	−0.271*	−0.092*	0.238*	1						
13. PPE/assets	−0.044*	−0.037*	−0.032*	−0.029*	0.127*	−0.063*	−0.094*	−0.085*	0.118*	−0.002	0.056*	−0.031*	1					
14. Cash/assets	−0.007	−0.003	−0.003	−0.005	−0.036*	0.013*	0.156*	0.152*	−0.073*	0.073*	−0.119*	−0.134*	−0.252*	1				
15. Intangible/assets	−0.018*	−0.012*	−0.023*	−0.018*	−0.015*	0.010	0.004	0.002	−0.052*	−0.023*	−0.058*	0.031*	0.147*	−0.091*	1			
16. R&D/assets	0.061*	0.045*	0.051*	0.055*	−0.044*	0.038*	0.089*	0.099*	−0.045*	−0.024*	0.027*	0.032*	−0.070*	0.013	0.115*	1		
17. Return-on-equity ratio	−0.007	−0.004	0.001	0.000	0.035*	−0.027*	0.006	0.006	0.043*	0.058*	0.030*	−0.074*	−0.093*	0.135*	−0.061*	−0.022*	1	
18. Dividend distribution ratio	0.068*	0.057*	0.055*	0.051*	−0.017*	0.024*	0.077*	0.057*	−0.056*	0.028*	0.136*	0.022*	−0.021*	0.051*	−0.023*	0.027*	0.048*	1

Note: This table reports correlation matrix of all independent variables employed in this study. The definitions and measurements of all variables are presented in Appendix A. * represents the significance level of 5%.

TABLE 3 CTA and debt financing levels by board "busyness" interval categories.

Panel A												
%busyIDs (cut-off 3)												
	< 10%	**10%–19%**	**20%–29%**	**30%–39%**	**40%–49%**	**50%–59%**	**60%–69%**	**70%–79%**	**80%–89%**	**90%–99%**	**100%**	**Sum**
N	7219	547	3202	6445	814	2172	3655	667	150	0	1688	26559
%	27.18%	2.06%	12.06%	24.27%	3.06%	8.18%	13.76%	2.51%	0.56%	0.00%	6.36%	100%
GAAP ETR	0.174	0.168	0.181	0.175	0.187	0.18	0.178	0.182	0.168		0.168	
	< 10%	**10%–19%**	**20%–29%**	**30%–39%**	**40%–49%**	**50%–59%**	**60%–69%**	**70%–79%**	**80%–89%**	**90%–99%**	**100%**	**Sum**
N	8922	669	3825	7507	967	2514	4176	756	168	0	1950	31454
%	28.37%	2.13%	12.16%	23.87%	3.07%	7.99%	13.28%	2.40%	0.53%	0.00%	6.20%	100%
Liabilities over assets	0.441	0.489	0.463	0.43	0.466	0.461	0.445	0.475	0.496		0.461	
Panel B												
#busyIDs (cut-off 3)												
	1	**2**	**3**	**4**	**5**	**6**						**Sum**
N	15780	4527	1126	92	3	2866						24394
%	64.69%	18.56%	4.62%	0.38%	0.01%	11.75%						100%
GAAP ETR	0.177	0.183	0.188	0.207	0.423	0.15						
	1	**2**	**3**	**4**	**5**	**6**						**Sum**
N	19221	5207	1251	103	4	3151						28937
%	66.42%	17.99%	4.32%	0.36%	0.01%	10.89%						100%
Liabilities over assets	0.446	0.464	0.467	0.551	0.568	0.404						

Note: This table reports the changes of CTA (*GAPP ETR*) and debt financing levels (liabilities over assets) across different interval categories of board "busyness" levels (using the cut-off 3). The definitions and measurements of all variables are presented in Appendix A.

4.2 | Results of testing H_1: Busy IDs and corporate financial leverage

We next examine whether firms with busy boards experience greater debt levels using simple regression analysis. We employ four different proxies for board "busyness" (*#directorship*; *%busyIDs (cut-off 3)*; *%busyIDs (cut-off 4)*; *%busyIDs (cut-off 5)*) at the year ($t-1$) to ensure that the approach of calculating levels of "busyness" does not affect overall results. Some endogeneity problems (e.g., simultaneity) are reduced under the lagging fashion design. As demonstrated in Table 4 (Panel A: models 1–3), three (out of four) board "busyness" measures are positively and significantly associated with *liabilities over assets*. This implies that without control variables, firms with busy boards generally exhibit a higher level of debt. The increase in corporate financial leverage is consistent with the reputational hypothesis of "busyness," in which boards with busy IDs appear to have stronger networks and easier access to debt markets to raise funds at a cheaper cost (Chakravarty & Rutherford, 2017; Trinh, Aljughaiman, & Cao, 2020).

We further investigate the association between busy boards and corporate financial leverage in a *multivariate* setting. Table 4 (Panels B and C) reports these results, confirming our prediction in the first hypothesis $\boldsymbol{H_1}$. Specifically, we find that across all models (5-8), four alternative proxies for board "busyness" have a positive and statistically significant impact on *liabilities over assets*, even in the presence of other board composition (size, independence), share ownerships of board members, executives, state and foreign investors, and firm-level characteristics as control variables. We observe consistent results in Table 4, Panel C (models 9–12) when lagging board size and board independence by 1-year. Therefore, we conclude that firms with higher degrees of board "busyness" are more likely to experience higher levels of debt financing than their counterparts with lower degrees of board "busyness,"[6] thus supporting $\boldsymbol{H_1}$. In brief, a firm having busy IDs on its board may prefer to finance itself with debt, as these directors have access to a broader network and extensive business experience and expertise. Hence, they can introduce their firms to alternative debt markets and also assist them in obtaining lower interest rates on debt (Chakravarty & Rutherford, 2017; Trinh et al., 2021).

The economic magnitude is also significant. For example, in Panel C, we find that the coefficients of the busy IDs percentage, that is, *%busyIDs (cut-off 3)* [*%busyIDs (cut-off 4)*; *%busyIDs (cut-off 5)*] on *liabilities over assets* is 0.013 [0.019; 0.021], respectively, suggesting that a one-standard-deviation increase in the busy IDs percentage (in year $t-1$) corresponds to 0.003%–0.004%[7] increase in the corporate debt financing level (in year t). Similarly, the directorship (*#directorship*) coefficient on *liabilities over assets* is 0.005, suggesting that a one-standard-deviation increase in the average directorship that IDs held added to a board (year $t-1$) corresponds to a 0.005% (0.005 * 0.901 = 0.005) increase in the corporate debt financing level (in year t). The signs of control variables are consistent with previous studies.

4.3 | Busy IDs and CTA

We test the association between busy IDs and CTA in both simple (Table 5, Panel A, models 1–4) and multiple regression settings 1 (Table 5, Panel B, models 5–8) and 2 (Table 5, Panel C, models 9–12). We find consistent results across almost all models (except models 6, 8, and 10). Specifically, the coefficients of four different proxies for board "busyness" are statistically significant and positive, demonstrating a positive effect of board "busyness" on the *GAAP ETR* proxy. We interpret that board "busyness" is significantly related to more conservative CTA behavior. In brief, busy IDs have amassed firsthand knowledge of avoiding unfavorable operational outcomes across various companies and industries (Trinh, 2022). In addition, they should possess extensive knowledge of both the firm's internal organizational

[6] In Appendix B (web appendix), using *%busyIDs (cut-off 3)*, we generally find that firms with busy independent directors and higher liabilities relative to assets tend to exhibit worse performance, as measured by the return-on-assets ratio and the return-on-equity ratio.

[7] 0.013 * 0.267 = 0.003; 0.019 * 0.214 = 0.004; 0.021 * 0.163 = 0.003, where 0.267, 0.214, and 0.163 are the standard deviations of %busyIDs (cut-off 3), %busyIDs (cut-off 4), and %busyIDs (cut-off 5), respectively.

TABLE 4 Step 1: Effect of board "busyness" on debt financing strategies.

	Dependent variable = liabilities over assets											
	Panel A: Simple regression analysis				Panel B: Multiple regression analysis 1				Panel C: Multiple regression analysis 2			
Parameter	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Intercept	0.446***	0.450***	0.451***	0.453***	−1.799***	−1.793***	−1.793***	−1.790***	−1.836***	−1.831***	−1.832***	−1.828***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$\#directorship_{t-1}$	0.003**				0.005**				0.005**			
	(0.029)				(0.037)				(0.041)			
$\%busyIDs\ (cut\text{-}off\ 3)_{t-1}$		0.012**				0.014**				0.013*		
		(0.017)				(0.048)				(0.080)		
$\%busyIDs\ (cut\text{-}off\ 4)_{t-1}$			0.014**				0.021***				0.019**	
			(0.030)				(0.009)				(0.023)	
$\%busyIDs\ (cut\text{-}off\ 5)_{t-1}$				0.011				0.019*				0.021**
				(0.192)				(0.056)				(0.046)
$Ln(board\ size)_{t-1}$									−0.014	−0.014	−0.014	−0.014
									(0.371)	(0.382)	(0.368)	(0.374)
$\%IDs_{t-1}$									0.042	0.041	0.043	0.040
									(0.364)	(0.378)	(0.356)	(0.380)
Ln(board size)					−0.012	−0.012	−0.012	−0.012				
					(0.449)	(0.447)	(0.455)	(0.447)				
%IDs					0.021	0.019	0.022	0.021				
					(0.658)	(0.682)	(0.644)	(0.661)				
% Shares held by board of directors					−0.021	−0.023	−0.022	−0.022	−0.048*	−0.049*	−0.049*	−0.048*
					(0.405)	(0.374)	(0.384)	(0.386)	(0.078)	(0.071)	(0.069)	(0.074)
% Shares held by executives					−0.031	−0.030	−0.031	−0.032	−0.016	−0.016	−0.016	−0.017
					(0.319)	(0.337)	(0.319)	(0.308)	(0.607)	(0.625)	(0.615)	(0.584)
% State ownership					−0.079***	−0.079***	−0.079***	−0.079***	−0.085***	−0.085***	−0.084***	−0.085***
					(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
% Foreign ownership					−0.069	−0.069	−0.070	−0.070	−0.094*	−0.094*	−0.094*	−0.095*
					(0.109)	(0.109)	(0.106)	(0.103)	(0.091)	(0.091)	(0.090)	(0.087)

(Continues)

TABLE 4 (Continued)

	Dependent variable = liabilities over assets											
	Panel A: Simple regression analysis				Panel B: Multiple regression analysis 1				Panel C: Multiple regression analysis 2			
Parameter	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Ln(total assets)					0.096***	0.096***	0.096***	0.096***	0.094***	0.094***	0.094***	0.094***
					(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Ln(firm age)					0.049***	0.049***	0.049***	0.049***	0.072***	0.072***	0.073***	0.073***
					(0.009)	(0.009)	(0.008)	(0.009)	(0.001)	(0.001)	(0.001)	(0.001)
PPE/assets					0.171***	0.171***	0.171***	0.171***	0.165***	0.165***	0.165***	0.164***
					(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Cash/assets					−0.210***	−0.210***	−0.210***	−0.210***	−0.185***	−0.185***	−0.185***	−0.185***
					(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Intangible/assets					0.208***	0.208***	0.208***	0.209***	0.203***	0.203***	0.203***	0.204***
					(0.004)	(0.004)	(0.004)	(0.004)	(0.008)	(0.008)	(0.008)	(0.008)
R&D/assets					0.085	0.089	0.088	0.085	0.060	0.064	0.063	0.061
					(0.798)	(0.789)	(0.794)	(0.798)	(0.860)	(0.853)	(0.855)	(0.857)
Return-on-equity ratio					−0.041	−0.041	−0.042	−0.042	−0.040	−0.040	−0.041	−0.041
					(0.115)	(0.118)	(0.111)	(0.108)	(0.118)	(0.120)	(0.115)	(0.111)
Dividend distribution ratio					−0.005***	−0.005***	−0.005***	−0.005***	−0.005**	−0.005**	−0.004**	−0.005**
					(0.006)	(0.007)	(0.007)	(0.006)	(0.010)	(0.011)	(0.011)	(0.010)
Year fixed effect	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed level	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster at firm level	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	27,629	27,629	27,629	27,629	10,503	10,503	10,503	10,503	9740	9740	9740	9740
R-square	0.000	0.000	0.000	0.000	0.837	0.837	0.837	0.837	0.833	0.833	0.833	0.833
Adjusted *R*-square	0.000	0.000	0.000	0.000	0.797	0.797	0.798	0.797	0.790	0.790	0.790	0.790
Wald Chi^2 (*p*-value)	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***

Note: This table presents both simple (Panel A) and multiple regression results (Panel B-C) on the relationship between board "busyness" and debt financing levels. The models are estimated using year-firm-industry fixed effects and clustering at the firm level. *p*-values are presented in parentheses. The definitions and measurements of all variables are presented in Appendix A.
***, ** and * represent the significance levels of 1%, 5%, and 10%, respectively.

TABLE 5 Step 2: Effect of board "busyness" on CTA behaviour.

Parameter	*Dependent variable = GAAP ETR*											
	Panel A: Simple regression analysis				Panel B: Multiple regression analysis 1				Panel C: Multiple regression analysis 2			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Intercept	0.172***	0.176***	0.176***	0.177***	0.212*	0.220*	0.218*	0.224*	0.183	0.191	0.188	0.193
	(0.000)	(0.000)	(0.000)	(0.000)	(0.074)	(0.066)	(0.067)	(0.062)	(0.172)	(0.155)	(0.161)	(0.152)
$\#directorship_{t-1}$	0.003***				0.005**				0.006**			
	(0.008)				(0.042)				(0.048)			
$\%busyIDs\ (cut\text{-}off\ 3)_{t-1}$		0.009**				0.007				0.005		
		(0.016)				(0.337)				(0.533)		
$\%busyIDs\ (cut\text{-}off\ 4)_{t-1}$			0.014***				0.016*				0.018*	
			(0.002)				(0.080)				(0.066)	
$\%busyIDs\ (cut\text{-}off\ 5)_{t-1}$				0.011*				0.019				0.022*
				(0.067)				(0.108)				(0.085)
$Ln(board\ size)_{t-1}$									0.007	0.006	0.007	0.007
									(0.674)	(0.707)	(0.687)	(0.678)
$\%IDs_{t-1}$									−0.018	−0.021	−0.018	−0.019
									(0.751)	(0.705)	(0.753)	(0.730)
Ln(board size)					−0.014	−0.014	−0.014	−0.015				
					(0.373)	(0.364)	(0.378)	(0.362)				
%IDs					0.057	0.054	0.057	0.055				
					(0.268)	(0.288)	(0.268)	(0.278)				
% Shares held by board of directors					0.002	0.000	0.001	0.001	−0.003	−0.005	−0.004	−0.003
					(0.923)	(0.993)	(0.971)	(0.955)	(0.914)	(0.860)	(0.872)	(0.905)
% Shares held by executives					0.022	0.024	0.023	0.022	0.018	0.020	0.019	0.018
					(0.384)	(0.356)	(0.379)	(0.394)	(0.547)	(0.521)	(0.535)	(0.568)
% State ownership					−0.009	−0.009	−0.009	−0.009	−0.004	−0.004	−0.004	−0.004
					(0.596)	(0.590)	(0.614)	(0.613)	(0.825)	(0.811)	(0.839)	(0.837)
% Foreign ownership					−0.007	−0.008	−0.008	−0.008	−0.043	−0.044	−0.044	−0.044
					(0.875)	(0.862)	(0.860)	(0.863)	(0.435)	(0.425)	(0.427)	(0.429)

(Continues)

TABLE 5 (Continued)

Parameter	*Dependent variable = GAAP ETR*											
	Panel A: Simple regression analysis				Panel B: Multiple regression analysis 1				Panel C: Multiple regression analysis 2			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Ln(total assets)					0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
					(0.667)	(0.650)	(0.656)	(0.669)	(0.703)	(0.685)	(0.693)	(0.711)
Ln(firm age)					−0.025	−0.024	−0.024	−0.025	−0.019	−0.018	−0.017	−0.018
					(0.196)	(0.204)	(0.205)	(0.201)	(0.490)	(0.513)	(0.518)	(0.514)
PPE/assets					0.012	0.012	0.012	0.012	0.011	0.012	0.012	0.011
					(0.574)	(0.563)	(0.568)	(0.579)	(0.612)	(0.600)	(0.605)	(0.615)
Cash/assets					0.010	0.009	0.009	0.009	0.003	0.003	0.003	0.003
					(0.561)	(0.567)	(0.577)	(0.579)	(0.880)	(0.888)	(0.888)	(0.897)
Intangible/assets					0.022	0.022	0.022	0.025	0.040	0.040	0.039	0.042
					(0.741)	(0.738)	(0.743)	(0.712)	(0.585)	(0.581)	(0.588)	(0.562)
R&D/assets					−0.125	−0.129	−0.123	−0.125	−0.086	−0.091	−0.082	−0.085
					(0.719)	(0.710)	(0.722)	(0.718)	(0.817)	(0.807)	(0.825)	(0.820)
Return-on-equity ratio					−0.300***	−0.300***	−0.300***	−0.301***	−0.299***	−0.300***	−0.300***	−0.300***
					(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Dividend distribution ratio					−0.006**	−0.006**	−0.006**	−0.006**	−0.006**	−0.006**	−0.006**	−0.006**
					(0.029)	(0.031)	(0.031)	(0.029)	(0.046)	(0.047)	(0.048)	(0.046)
Year fixed effect	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed level	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster at firm level	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	23,229	23,229	23,229	23,229	9863	9863	9863	9863	9104	9104	9104	9104
R-square	0.000	0.000	0.000	0.000	0.411	0.411	0.411	0.411	0.412	0.412	0.412	0.412
Adjusted *R*-square	0.000	0.000	0.000	0.000	0.261	0.260	0.260	0.260	0.255	0.255	0.255	0.255
Wald Chi^2 (*p*-value)	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***

Note: This table presents both simple (Panel A) and multiple regression results (Panel B–C) on the relationship between board "busyness" and CTA. The models are estimated using year-firm-industry fixed effects and clustering at the firm level. *p*-values are presented in parentheses. The definitions and measurements of all variables are presented in Appendix A.
***, ** and * represent the significance levels of 1%, 5%, and 10%, respectively.

context and external institutional environment (Trinh et al., 2021). Importantly, since all qualified IDs have a distinguished social standing in their fields, the network reputation is central for those sitting on multiple boards across firms, as they are responsible for playing an effective role in monitoring and advising on appropriate managerial behaviors (Ma & Khanna, 2016; Wu & Dong, 2021; Zhu et al., 2016). Taken together, busy IDs on boards can improve their advisory effectiveness concerning managers' CTA decisions. Alternatively, one could argue that busy IDs simply do not have the sufficient time to explore all allowable legal avenues to minimize tax responsibilities.

These results embody economic significance. For example, in Panels B and C, we find that the coefficients of the busy IDs percentage on *liabilities over assets* range from 0.016 to 0.022, suggesting that a one-standard-deviation increase in busy IDs percentage (in year $t-1$) corresponds to a 0.003%–0.004%[8] reduction in corporate CTA behavior (in year t). Similarly, the directorship (*#directorship*) coefficients on *liabilities over assets* range from 0.005 to 0.006, suggesting that a one-standard-deviation increase in the average directorship that IDs held added to a board (year $t-1$) corresponds to a 0.005% (0.005 * 0.901 = 0.005; 0.006 * 0.901 = 0.005) reduction in corporate CTA behavior (in year t). The signs of control variables are consistent with previous studies.

4.4 | CTA and corporate financial leverage

We next examine the effect of the CTA (*GAAP ETR*) on firm financial leverage. Table 6 reports the regression results, which show a significant and positive relationship between *GAAP ETR* and *liabilities over assets* in all settings, univariate (Panel A) and multivariate analysis (Panel B and Panel C). The results suggest that firms with lower CTA levels experience greater debt levels. Our finding supports the substitution effect between CTA and financial leverage that is well-evidenced in prior studies (e.g., Graham & Tucker, 2006; Lim, 2011, 2012; Richardson et al., 2014). In brief, the debt-CTA substitution effect means that a higher (lower) CTA leads to a higher (lower) nondebt tax shield, which in turn results in a lower (higher) need for a debt tax shield and hence, a higher (lower) debt level. Moreover, compared to firms with a greater level of CTA behavior, firms with lower levels of CTA may have a greater need to raise external funding due to their reduced cash flows. In line with the pecking order theory, the latter is likely to prefer using debt to finance their investments due to its advantages over equity (e.g., tax shield), especially when they have better access to cheaper debt markets (e.g., cheaper cost of debt). Economically, the *GAAP ETR* coefficient suggests that for every 1% reduction in the tax avoidance level in year ($t-1$), the debt level in year t is increased by about 0.022%–0.184%. The signs of control variables are consistent with previous studies.

4.5 | Results of testing H_2: The accounting underlying mechanism analysis

We finally explore whether the presence of busy IDs increases the debt financing levels of firms by decreasing their CTA behavior. We hence take a step forward to examine the mediating effect of CTA on the association between board "busyness" and financial leverage (Step 4). Table 7 shows that across all measures of board "busyness," the significance level of this variable reduces but remains significant (except for models 15–16, which show insignificance). However, considering the results from Step 2 (Table 5) and Step 3 (Table 6), we identify mediating impacts in the following models: 1–2, 5–6, 9–10, 13–14, and 15–16. Accordingly, we conclude that CTA generally exhibits a partial mediating effect, except in models 15–16, which show a full mediating impact. This suggests that CTA serves as an underlying mechanism through which board "busyness" increases corporate financial leverage. In other words, the presence of busy IDs generally increases the firm's financial leverage through moderating managers' CTA behaviors.

[8] 0.016 * 0.214 = 0.003; 0.022 * 0.163 = 0.004, where 0.214, and 0.163 are standard deviations of %busyIDs (cut-off 4), and %busyIDs (cut-off 5), respectively.

TABLE 6 Step 3: Effect of CTA on debt financing strategies.

Parameter	*Dependent variable = liabilities over assets*		
	Panel A: Simple regression analysis	Panel B: Multiple regression analysis 1	Panel B: Multiple regression analysis 2
	(1)	(2)	(3)
Intercept	0.399***	−1.926***	−2.056***
	(0.000)	(0.000)	(0.000)
GAAP ETR$_{t-1}$	0.184***	0.029**	0.022*
	(0.000)	(0.024)	(0.092)
Ln(board size)$_{t-1}$			−0.009
			(0.567)
%IDs$_{t-1}$			0.066
			(0.158)
Ln(board size)		−0.015	
		(0.362)	
%IDs		0.012	
		(0.799)	
% Shares held by board of directors		−0.007	−0.031
		(0.787)	(0.234)
% Shares held by executives		−0.021	−0.005
		(0.456)	(0.853)
% State ownership		−0.062***	−0.071***
		(0.000)	(0.000)
% Foreign ownership		−0.064	−0.067
		(0.151)	(0.208)
Ln(total assets)		0.102***	0.103***
		(0.000)	(0.000)
Ln(firm age)		0.046**	0.075***
		(0.022)	(0.002)
PPE/assets		0.159***	0.156***
		(0.000)	(0.000)
Cash/assets		−0.215***	−0.185***
		(0.000)	(0.000)
Intangible/assets		0.167**	0.149**
		(0.015)	(0.043)
R&D/assets		0.115	0.087
		(0.729)	(0.798)
Return-on-equity ratio		−0.037	−0.034
		(0.220)	(0.263)
Dividend distribution ratio		−0.003*	−0.003
		(0.075)	(0.129)
Year fixed effect	No	Yes	Yes

(Continues)

TABLE 6 (Continued)

Parameter	*Dependent variable = liabilities over assets*		
	Panel A: Simple regression analysis	Panel B: Multiple regression analysis 1	Panel B: Multiple regression analysis 2
	(1)	(2)	(3)
Firm fixed level	No	Yes	Yes
Industry fixed effect	No	Yes	Yes
Cluster at firm level	No	Yes	Yes
Observations	23,870	9501	8739
R-square	0.017	0.855	0.852
Adjusted *R*-square	0.017	0.817	0.812
Wald Chi^2 (*p*-value)	0.000***	0.000***	0.000***

Note: This table presents both simple (Panel A) and multiple regression results (Panel B–C) on the relationship between CTA and debt financing levels. The models are estimated using year-firm-industry fixed effects and clustering at the firm level. *p*-values are presented in parentheses. The definitions and measurements of all variables are presented in Appendix A.
***, ** and * represent the significance levels of 1%, 5%, and 10%, respectively.

Through the expertise gained through directorships in several firms, busy IDs have a more nuanced understanding of the trade-offs between the costs and benefits of utilizing nondebt tax shields and deducting debt interest. Given their expertise, we argue that busy IDs may have a thorough understanding of financial market conditions and the potential costs of financial distress and bankruptcy associated with certain leverage ratios. They should also appreciate the potential monitoring role of debt utilization in preventing managerial opportunism, reducing agency problems, and improving the transparency and accountability of the firms they serve. Taken together, the "busyness" of IDs tends to reduce a firm's CTA and, in turn, increase the level of corporate financial leverage.

5 | SENSITIVITY AND ROBUSTNESS CHECKS

5.1 | Adding more control variables

We first check whether our main results are robust when we incorporate more control variables into the empirical models. These factors include CEO duality (i.e., a dummy variable taking the value of 1 if the chair and the CEO are the same people and 0 otherwise); %Female (the percentage of female directors on board); CEO tenure (the number of years that a CEO has held his position); and Big 4 audit (a dummy variable taking the value of 1 if a Big 4 auditing practice audits the firm). Using all four proxies of board "busyness," the results in Table 8 (except for *%busyIDs (cut-off 3)* $_{t-1}$) generally indicate that our findings remain relatively consistent.

5.2 | Long-run CTA measure

While the GAAP effective tax rate (*GAAP ETR*: our main measure) is disclosed by firms in their financial statements, it is based on only annual data. Prior studies (e.g., Dyreng et al., 2008) argue that there is possibly a significant year-to-year difference in annual effective tax rates because of negative denominators (i.e., pretax income). This may in turn obscure inferences regarding CTA. In this study, we retest the four-step mediation model by making a modification to overcome the limitation(s) of *GAAP ETR*. Specifically, we measure effective tax rates over a longer-term period, that

TABLE 7 Board "busyness" and debt financing strategies: The mediating effect of CTA—Baron and Kenny (1986) four-step mediation model.

Dependent variable = liabilities over assets *Step 1* (*Univariate tests*: see Table 4) Step 2 (see Table 5) Step 3 (see Table 6)																
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Parameter	Step 1	Step 4	Step 1	Step 4	Step 1	Step 4	Step 1	Step 4	Step 1	Step 4	Step 1	Step 4	Step 1	Step 4	Step 1	Step 4
Intercept	−1.799***	−1.932***	−1.793***	−1.928***	−1.793***	−1.928***	−1.790***	−1.924***	−1.836***	−2.063***	−1.831***	−2.059***	−1.832***	−2.059***	−1.828***	−2.055***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$\#directorship_{t-1}$	0.005**	0.004*							0.005**	0.005*						
	(0.037)	(0.062)							(0.041)	(0.061)						
$\%busyIDs\ (cut\text{-}off\ 3)_{t-1}$			0.014**	0.015**							0.013*	0.014*				
			(0.048)	(0.031)							(0.080)	(0.054)				
$\%busyIDs\ (cut\text{-}off\ 4)_{t-1}$					0.021***	0.018**							0.019**	0.017**		
					(0.009)	(0.022)							(0.023)	(0.045)		
$\%busyIDs\ (cut\text{-}off\ 5)_{t-1}$							0.019*	0.013							0.021**	0.015
							(0.056)	(0.205)							(0.046)	(0.138)
$GAAP\ ETR_{t-1}$		0.028**		0.028**		0.028**		0.028**		0.021*		0.022*		0.022*		0.021*
		(0.026)		(0.025)		(0.024)		(0.025)		(0.100)		(0.097)		(0.095)		(0.097)
$\text{Ln(board size)}_{t-1}$									−0.014	−0.008	−0.014	−0.008	−0.014	−0.008	−0.014	−0.009
									(0.371)	(0.608)	(0.382)	(0.633)	(0.368)	(0.606)	(0.374)	(0.593)
$\%IDs_{t-1}$									0.042	0.069	0.041	0.069	0.043	0.070	0.040	0.068
									(0.364)	(0.138)	(0.378)	(0.141)	(0.356)	(0.133)	(0.380)	(0.147)
Ln(board size)	−0.012	−0.015	−0.012	−0.015	−0.012	−0.015	−0.012	−0.015								
	(0.449)	(0.371)	(0.447)	(0.375)	(0.455)	(0.376)	(0.447)	(0.364)								
%IDs	0.021	0.015	0.019	0.013	0.022	0.015	0.021	0.014								
	(0.658)	(0.759)	(0.682)	(0.781)	(0.644)	(0.747)	(0.661)	(0.773)								
% Shares held by board of directors	−0.021	−0.005	−0.023	−0.006	−0.022	−0.006	−0.022	−0.006	−0.048*	−0.029	−0.049*	−0.030	−0.049*	−0.030	−0.048*	−0.030
	(0.405)	(0.844)	(0.374)	(0.811)	(0.384)	(0.822)	(0.386)	(0.816)	(0.078)	(0.261)	(0.071)	(0.248)	(0.069)	(0.244)	(0.074)	(0.252)
% Shares held by executives	−0.031	−0.021	−0.030	−0.020	−0.031	−0.022	−0.032	−0.022	−0.016	−0.006	−0.016	−0.005	−0.016	−0.006	−0.017	−0.007
	(0.319)	(0.440)	(0.337)	(0.467)	(0.319)	(0.436)	(0.308)	(0.431)	(0.607)	(0.830)	(0.625)	(0.856)	(0.615)	(0.835)	(0.584)	(0.807)

(Continues)

TABLE 7 (Continued)

Dependent variable = liabilities over assets *Step 1* (*Univariate tests*: see Table 4) Step 2 (see Table 5) Step 3 (see Table 6)																
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Parameter	Step 1	Step 4	Step 1	Step 4	Step 1	Step 4	Step 1	Step 4	Step 1	Step 4	Step 1	Step 4	Step 1	Step 4	Step 1	Step 4
% State ownership	−0.079***	−0.061***	−0.079***	−0.061***	−0.079***	−0.061***	−0.079***	−0.061***	−0.085***	−0.070***	−0.085***	−0.070***	−0.084***	−0.070***	−0.085***	−0.070***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
% Foreign ownership	−0.069	−0.062	−0.069	−0.062	−0.070	−0.063	−0.070	−0.064	−0.094*	−0.066	−0.094*	−0.066	−0.094*	−0.067	−0.095*	−0.067
	(0.109)	(0.159)	(0.109)	(0.161)	(0.106)	(0.154)	(0.103)	(0.151)	(0.091)	(0.216)	(0.091)	(0.214)	(0.090)	(0.211)	(0.087)	(0.207)
Ln(total assets)	0.096***	0.102***	0.096***	0.102***	0.096***	0.102***	0.096***	0.102***	0.094***	0.103***	0.094***	0.103***	0.094***	0.103***	0.094***	0.103***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Ln(firm age)	0.049***	0.045**	0.049***	0.045**	0.049***	0.045**	0.049***	0.045**	0.072***	0.074***	0.072***	0.074***	0.073***	0.074***	0.073***	0.074***
	(0.009)	(0.024)	(0.009)	(0.024)	(0.008)	(0.024)	(0.009)	(0.023)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)
PPE/assets	0.171***	0.159***	0.171***	0.159***	0.171***	0.159***	0.171***	0.159***	0.165***	0.156***	0.165***	0.156***	0.165***	0.156***	0.164***	0.156***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Cash/assets	−0.210***	−0.215***	−0.210***	−0.215***	−0.210***	−0.215***	−0.210***	−0.215***	−0.185***	−0.185***	−0.185***	−0.185***	−0.185***	−0.185***	−0.185***	−0.185***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Intangible/assets	0.208***	0.168**	0.208***	0.167**	0.208***	0.168**	0.209***	0.169**	0.203***	0.150**	0.203***	0.149**	0.203***	0.150**	0.204***	0.151**
	(0.004)	(0.015)	(0.004)	(0.015)	(0.004)	(0.015)	(0.004)	(0.014)	(0.008)	(0.041)	(0.008)	(0.042)	(0.008)	(0.041)	(0.008)	(0.040)
R&D/assets	0.085	0.118	0.089	0.122	0.088	0.119	0.085	0.119	0.060	0.087	0.064	0.089	0.063	0.087	0.061	0.090
	(0.798)	(0.722)	(0.789)	(0.713)	(0.794)	(0.721)	(0.798)	(0.720)	(0.860)	(0.799)	(0.853)	(0.794)	(0.855)	(0.799)	(0.857)	(0.792)
Return-on-equity ratio	−0.041	−0.037	−0.041	−0.036	−0.042	−0.037	−0.042	−0.037	−0.040	−0.034	−0.040	−0.034	−0.041	−0.034	−0.041	−0.034
	(0.115)	(0.219)	(0.118)	(0.228)	(0.111)	(0.214)	(0.108)	(0.214)	(0.118)	(0.261)	(0.120)	(0.269)	(0.115)	(0.258)	(0.111)	(0.256)
Dividend distribution ratio	−0.005***	−0.003*	−0.005***	−0.003*	−0.005***	−0.003*	−0.005***	−0.003*	−0.005**	−0.003	−0.005**	−0.003	−0.004**	−0.003	−0.005**	−0.003
	(0.006)	(0.073)	(0.007)	(0.079)	(0.007)	(0.079)	(0.006)	(0.072)	(0.010)	(0.128)	(0.011)	(0.136)	(0.011)	(0.137)	(0.010)	(0.126)

(Continues)

TABLE 7 (Continued)

Dependent variable = liabilities over assets *Step 1* (*Univariate tests*: see Table 4) Step 2 (see Table 5) Step 3 (see Table 6)																
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Parameter	Step 1	Step 4	Step 1	Step 4	Step 1	Step 4	Step 1	Step 4	Step 1	Step 4	Step 1	Step 4	Step 1	Step 4	Step 1	Step 4
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed level	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster at firm level	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,503	9501	10,503	9501	10,503	9501	10,503	9501	9740	8739	9740	8739	9740	8739	9740	8739
R-square	0.837	0.855	0.837	0.855	0.837	0.855	0.837	0.855	0.833	0.853	0.833	0.853	0.833	0.853	0.833	0.852
Adjusted *R*-square	0.797	0.817	0.797	0.817	0.798	0.817	0.797	0.817	0.790	0.812	0.790	0.812	0.790	0.812	0.790	0.812
Wald Chi^2 (*p*-value)	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***

Note: This table presents the results on the mediating effect of CTA on the relationship between board "busyness" and debt financing levels using the Baron and Kenny (1986) four-step mediation model. The models are estimated using year-firm-industry fixed effects and clustering at the firm level. *p*-values are presented in parentheses. The definitions and measurements of all variables are presented in Appendix A.
***, ** and * represent the significance levels of 1%, 5%, and 10%, respectively.

TABLE 8 Sensitivity tests: Adding more control variables.

Parameter	(1) Step 1	(2) Step 2	(3) Step 3	(4) Step 4	(5) Step 1	(6) Step 2	(7) Step 3	(8) Step 4	(9) Step 1	(10) Step 2	(11) Step 3	(12) Step 4	(13) Step 1	(14) Step 2	(15) Step 3	(16) Step 4
Intercept	−1.824***	0.181	−1.945***	−1.952***	−1.818***	0.187	−1.945***	−1.948***	−1.818***	0.187	−1.945***	−1.947***	−1.814***	0.192	−1.945***	−1.943***
	(0.000)	(0.132)	(0.000)	(0.000)	(0.000)	(0.119)	(0.000)	(0.000)	(0.000)	(0.120)	(0.000)	(0.000)	(0.000)	(0.110)	(0.000)	(0.000)
$\#directorship_{t-1}$	0.005**	0.005**		0.005*												
	(0.030)	(0.042)		(0.057)												
$\%busyIDs\ (cut\text{-}off\ 3)_{t-1}$					0.014**	0.008		0.015**								
					(0.040)	(0.323)		(0.032)								
$\%busyIDs\ (cut\text{-}off\ 4)_{t-1}$									0.021***	0.016*		0.019**				
									(0.009)	(0.090)		(0.020)				
$\%busyIDs\ (cut\text{-}off\ 5)_{t-1}$													0.020**	0.021*		0.013
													(0.048)	(0.078)		(0.190)
$GAAP\ ETR_{t-1}$			0.026**	0.026**			0.026**	0.026**			0.026**	0.026**			0.026**	0.026**
			(0.041)	(0.044)			(0.041)	(0.043)			(0.041)	(0.042)			(0.041)	(0.043)
Ln(board size)	−0.012	−0.014	−0.016	−0.016	−0.012	−0.014	−0.016	−0.016	−0.012	−0.014	−0.016	−0.016	−0.012	−0.014	−0.016	−0.016
	(0.419)	(0.394)	(0.334)	(0.340)	(0.418)	(0.386)	(0.334)	(0.343)	(0.426)	(0.399)	(0.334)	(0.345)	(0.418)	(0.384)	(0.334)	(0.334)
%IDs	0.016	0.055	0.009	0.012	0.014	0.053	0.009	0.010	0.017	0.055	0.009	0.013	0.015	0.054	0.009	0.011
	(0.738)	(0.290)	(0.847)	(0.804)	(0.766)	(0.313)	(0.847)	(0.829)	(0.724)	(0.291)	(0.847)	(0.790)	(0.743)	(0.300)	(0.847)	(0.818)
CEO duality	0.006	0.016**	0.007	0.007	0.006	0.016**	0.007	0.007	0.006	0.016**	0.007	0.007	0.006	0.016**	0.007	0.007
	(0.332)	(0.014)	(0.189)	(0.209)	(0.307)	(0.012)	(0.189)	(0.195)	(0.334)	(0.014)	(0.189)	(0.215)	(0.328)	(0.014)	(0.189)	(0.206)
%Female	0.001	−0.001	0.001	0.001	0.001	−0.001	0.001	0.001	0.001	−0.001	0.001	0.001	0.001	−0.001	0.001	0.001
	(0.522)	(0.669)	(0.526)	(0.507)	(0.524)	(0.659)	(0.526)	(0.510)	(0.527)	(0.659)	(0.526)	(0.513)	(0.528)	(0.661)	(0.526)	(0.516)
CEO tenure	0.000	−0.001*	0.001	0.001	0.000	−0.001*	0.001	0.001	0.000	−0.001*	0.001	0.001	0.000	−0.001*	0.001	0.001
	(0.501)	(0.096)	(0.258)	(0.264)	(0.525)	(0.093)	(0.258)	(0.282)	(0.512)	(0.094)	(0.258)	(0.266)	(0.507)	(0.095)	(0.258)	(0.260)
% Shares held by board of directors	−0.018	0.011	−0.001	0.001	−0.019	0.009	−0.001	0.000	−0.019	0.009	−0.001	0.000	−0.019	0.010	−0.001	0.000
	(0.495)	(0.632)	(0.980)	(0.968)	(0.465)	(0.690)	(0.980)	(0.998)	(0.469)	(0.678)	(0.980)	(0.993)	(0.476)	(0.656)	(0.980)	(0.994)
% Shares held by executives	−0.037	0.007	−0.030	−0.030	−0.036	0.008	−0.030	−0.029	−0.037	0.007	−0.030	−0.031	−0.038	0.006	−0.030	−0.031
	(0.249)	(0.798)	(0.302)	(0.296)	(0.261)	(0.769)	(0.302)	(0.313)	(0.250)	(0.792)	(0.302)	(0.295)	(0.238)	(0.821)	(0.302)	(0.287)

(Continues)

TABLE 8 (Continued)

Parameter	(1) Step 1	(2) Step 2	(3) Step 3	(4) Step 4	(5) Step 1	(6) Step 2	(7) Step 3	(8) Step 4	(9) Step 1	(10) Step 2	(11) Step 3	(12) Step 4	(13) Step 1	(14) Step 2	(15) Step 3	(16) Step 4
% State ownership	−0.081***	−0.007	−0.063***	−0.062***	−0.081***	−0.007	−0.063***	−0.062***	−0.080***	−0.007	−0.063***	−0.062***	−0.080***	−0.007	−0.063***	−0.062***
	(0.000)	(0.675)	(0.000)	(0.000)	(0.000)	(0.669)	(0.000)	(0.000)	(0.000)	(0.693)	(0.000)	(0.000)	(0.000)	(0.695)	(0.000)	(0.000)
% Foreign ownership	−0.064	−0.011	−0.057	−0.056	−0.065	−0.012	−0.057	−0.056	−0.065	−0.012	−0.057	−0.057	−0.065	−0.012	−0.057	−0.057
	(0.137)	(0.811)	(0.198)	(0.208)	(0.137)	(0.797)	(0.198)	(0.208)	(0.134)	(0.796)	(0.198)	(0.202)	(0.129)	(0.799)	(0.198)	(0.198)
Ln(total assets)	0.097***	0.003	0.103***	0.103***	0.097***	0.003	0.103***	0.103***	0.097***	0.003	0.103***	0.103***	0.097***	0.003	0.103***	0.103***
	(0.000)	(0.531)	(0.000)	(0.000)	(0.000)	(0.516)	(0.000)	(0.000)	(0.000)	(0.523)	(0.000)	(0.000)	(0.000)	(0.537)	(0.000)	(0.000)
Ln(firm age)	0.050***	−0.019	0.045**	0.044**	0.050***	−0.018	0.045**	0.044**	0.050***	−0.018	0.045**	0.044**	0.050***	−0.018	0.045**	0.044**
	(0.008)	(0.348)	(0.025)	(0.028)	(0.008)	(0.363)	(0.025)	(0.027)	(0.008)	(0.363)	(0.025)	(0.027)	(0.008)	(0.354)	(0.025)	(0.027)
PPE/assets	0.171***	0.011	0.158***	0.157***	0.171***	0.011	0.158***	0.158***	0.171***	0.011	0.158***	0.157***	0.170***	0.011	0.158***	0.157***
	(0.000)	(0.608)	(0.000)	(0.000)	(0.000)	(0.597)	(0.000)	(0.000)	(0.000)	(0.599)	(0.000)	(0.000)	(0.000)	(0.615)	(0.000)	(0.000)
Cash/assets	−0.211***	0.004	−0.215***	−0.215***	−0.211***	0.004	−0.215***	−0.215***	−0.211***	0.004	−0.215***	−0.216***	−0.211***	0.003	−0.215***	−0.216***
	(0.000)	(0.814)	(0.000)	(0.000)	(0.000)	(0.821)	(0.000)	(0.000)	(0.000)	(0.831)	(0.000)	(0.000)	(0.000)	(0.835)	(0.000)	(0.000)
Intangible/assets	0.201***	0.009	0.173***	0.174***	0.201***	0.009	0.173***	0.173***	0.200***	0.009	0.173***	0.174***	0.203***	0.012	0.173***	0.175***
	(0.004)	(0.894)	(0.009)	(0.009)	(0.004)	(0.891)	(0.009)	(0.009)	(0.004)	(0.898)	(0.009)	(0.009)	(0.004)	(0.863)	(0.009)	(0.008)
R&D/assets	0.028	−0.189	0.097	0.100	0.032	−0.193	0.097	0.104	0.031	−0.187	0.097	0.102	0.027	−0.189	0.097	0.101
	(0.934)	(0.572)	(0.772)	(0.764)	(0.925)	(0.562)	(0.772)	(0.754)	(0.926)	(0.575)	(0.772)	(0.761)	(0.936)	(0.571)	(0.772)	(0.762)
Return-on-equity ratio	−0.034	−0.303***	−0.041	−0.041	−0.034	−0.303***	−0.041	−0.040	−0.035	−0.304***	−0.041	−0.041	−0.035	−0.304***	−0.041	−0.041
	(0.201)	(0.000)	(0.186)	(0.184)	(0.207)	(0.000)	(0.186)	(0.193)	(0.195)	(0.000)	(0.186)	(0.180)	(0.190)	(0.000)	(0.186)	(0.179)
Dividend distribution ratio	−0.005***	−0.006**	−0.003*	−0.003*	−0.005***	−0.006**	−0.003*	−0.003*	−0.005***	−0.006**	−0.003*	−0.003*	−0.005***	−0.006**	−0.003*	−0.003*
	(0.005)	(0.027)	(0.055)	(0.054)	(0.006)	(0.029)	(0.055)	(0.058)	(0.006)	(0.029)	(0.055)	(0.059)	(0.005)	(0.027)	(0.055)	(0.053)
Big 4 audit	−0.019	−0.012	−0.021	−0.021	−0.018	−0.011	−0.021	−0.021	−0.019	−0.012	−0.021	−0.022	−0.019	−0.011	−0.021	−0.021
	(0.174)	(0.349)	(0.141)	(0.142)	(0.183)	(0.361)	(0.141)	(0.150)	(0.166)	(0.342)	(0.141)	(0.133)	(0.174)	(0.352)	(0.141)	(0.141)

(Continues)

TABLE 8 (Continued)

Parameter	(1) Step 1	(2) Step 2	(3) Step 3	(4) Step 4	(5) Step 1	(6) Step 2	(7) Step 3	(8) Step 4	(9) Step 1	(10) Step 2	(11) Step 3	(12) Step 4	(13) Step 1	(14) Step 2	(15) Step 3	(16) Step 4
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed level	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster at firm level	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,380	9755	9394	9394	10,380	9755	9394	9394	10,380	9755	9394	9394	10,380	9755	9394	9394
R-square	0.838	0.412	0.855	0.856	0.838	0.411	0.855	0.856	0.838	0.411	0.855	0.856	0.838	0.411	0.855	0.856
Adjusted *R*-square	0.798	0.259	0.817	0.817	0.798	0.259	0.817	0.818	0.798	0.259	0.817	0.818	0.798	0.259	0.817	0.817
Wald Chi^2 (*p*-value)	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***

Note: This table presents the sensitivity results when we add more control variables into the models: CEO duality (i.e., a dummy variable taking a value of 1 if the chair and the CEO are the same people and 0 otherwise), %female (the percentage of female directors on the board), CEO tenure (the number of years that the CEO holds his position), and Big 4 audit (a dummy variable taking a value of 1 if the firm is audited by Big 4 auditing companies). The models are estimated using year-firm-industry fixed effects and clustering at the firm level. *p*-values are presented in parentheses. The definitions and measurements of all variables are presented in Appendix A.

***, ** and * represent the significance levels of 1%, 5%, and 10%, respectively.

is, 3 years. To do this, we employ an alternative proxy for CTA: *LCETR3*, estimated by the ratio of a firm's total *cash* payment for taxes over a 3-year period, respectively, and the sum of its total pretax income over the same period. This approach can produce more effective tax rates that more closely track the tax expenses of firms over a long-term period (see Dyreng et al., 2008). Table 9 (Panel A and Panel B) reports our regression results, which produce consistent findings. With long-run CTA measures, our results reveal the *full* mediating effect of CTA on the association between board "busyness" and debt financing levels.

5.3 | Underlying channel analysis

We earlier argue that busy IDs possessing rich experience and expertise in certain areas such as accounting and finance could offer managers advice to prevent them from engaging in aggressive risk-taking and activities that damage their firms' reputations (e.g., aggressive tax sheltering and other corporate frauds) (Chen et al., 2019; Jiang & Kim, 2015). Therefore, we empirically examine this underlying channel by providing additional tests on the moderating effect of board accounting and financial (A&F) expertise on the relationship between board "busyness" and debt financing levels. An ID is classified as having A&F expertise if s/he has some current or past experience of serving as an accountant or senior accountant; as a CFA, ACCA, auditor, or senior auditor; in financial management or financial planning; or as a tax agent. Based on these criteria, *board-level* A&F expertise is measured by the following proxy: *%AF-Experts* (i.e., the percentage of A&F ID experts). Results are reported in Table 10, generally confirming our theoretical predictions that board A&F ID expertise and "busyness" in combination contribute to reducing CTA (model 14), which, in turn, increases financial leverage (models 1, 5, 9, 13[9]).

5.4 | The heterogenous effects of firm characteristics

We next examine the heterogeneous effects of main firm characteristics (i.e., firm size and firm age) on the relationship between board "busyness" and corporate financial leverage using the Baron and Kenny (1986) four-step mediation model. We use the median values for firm size and firm age as the cut-off to classify large versus small firms and mature versus young firms. Our results are reported in Table 11, Panels I and II, respectively. We generally find that our main results are more pronounced in large firms and mature firms.

5.5 | Clustering standard errors at the industry level

In this section, we further conduct a robustness check by clustering at the industry level, with the results presented in Table 12. Our findings remain generally consistent, indicating that board busyness is positively associated with corporate financial leverage (using all proxies of board busyness), primarily driven by a decline in CTA behavior (using two proxies to measure board busyness: the number of directorships: *#directorship* and the percentage of busy IDs (with a cutoff of 4): *%busyIDs (cut-off 4)*).

5.6 | Endogeneity concerns

Prior studies on the compositions of boards of directors have long emphasized the potentiality of endogeneity problems (see, *inter alia*, Hermalin & Weisbach, 2003). Such an issue arises mainly because of the causality between board

[9] We find stronger evidence for the four-step mediating effects in models 13–16.

TABLE 9 Alternative measures of CTA—Baron and Kenny (1986) four-step mediation model.

Step 1,2 and 4: Dependent variable = liabilities over assets **Step 3: Dependent variable = LCRTR3** ***(A firm's cash payment for taxes over a 3-year period and the sum of its total pretax income over the same period)***																
PANEL A: Multiple regression analysis 1																
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Variables	**Step 1**	**Step 2**	**Step 3**	**Step 4**	**Step 1**	**Step 2**	**Step 3**	**Step 4**	**Step 1**	**Step 2**	**Step 3**	**Step 4**	**Step 1**	**Step 2**	**Step 3**	**Step 4**
Parameter	−1.799***	1.551***	−2.390***	−2.392***	−1.793***	1.564***	−2.390***	−2.390***	−1.793***	1.562***	−2.390***	−2.391***	−1.790***	1.570***	−2.390***	−2.388***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$\#directorship_{t-1}$	0.005**	0.011**		0.002												
	(0.037)	(0.042)		(0.512)												
$\%busyIDs\ (cut\text{-}off\ 3)_{t-1}$					0.014**	0.033**		0.005								
					(0.048)	(0.030)		(0.607)								
$\%busyIDs\ (cut\text{-}off\ 4)_{t-1}$									0.021***	0.033*		0.015				
									(0.009)	(0.062)		(0.135)				
$\%busyIDs\ (cut\text{-}off\ 5)_{t-1}$													0.019*	0.038*		0.013
													(0.056)	(0.075)		(0.298)
$LCETR3_{t-1}$			0.047***	0.046***			0.047***	0.046***			0.047***	0.046***			0.047***	0.046***
			(0.000)	(0.000)			(0.000)	(0.000)			(0.000)	(0.000)			(0.000)	(0.000)
Ln(board size)	−0.012	−0.050	−0.013	−0.012	−0.012	−0.049	−0.013	−0.012	−0.012	−0.049	−0.013	−0.012	−0.012	−0.051	−0.013	−0.012
	(0.449)	(0.188)	(0.481)	(0.489)	(0.447)	(0.192)	(0.481)	(0.487)	(0.455)	(0.193)	(0.481)	(0.502)	(0.447)	(0.180)	(0.481)	(0.488)
%IDs	0.021	−0.023	0.092*	0.093*	0.019	−0.026	0.092*	0.093*	0.022	−0.024	0.092*	0.095*	0.021	−0.027	0.092*	0.094*
	(0.658)	(0.832)	(0.092)	(0.088)	(0.682)	(0.810)	(0.092)	(0.091)	(0.644)	(0.824)	(0.092)	(0.084)	(0.661)	(0.801)	(0.092)	(0.087)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed level	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster at firm level	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,503	6899	6061	6061	10,503	6899	6061	6061	10,503	6899	6061	6061	10,503	6899	6061	6061
R-square	0.837	0.704	0.858	0.858	0.837	0.704	0.858	0.858	0.837	0.704	0.858	0.858	0.837	0.704	0.858	0.858
Adjusted *R*-square	0.797	0.615	0.812	0.812	0.797	0.615	0.812	0.812	0.798	0.615	0.812	0.812	0.797	0.615	0.812	0.812

(Continues)

TABLE 9 (Continued)

PANEL B: Multiple regression analysis 2																
Parameter	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**	**(13)**	**(14)**	**(15)**	**(16)**
	Step 1	**Step 2**	**Step 3**	**Step 4**	**Step 1**	**Step 2**	**Step 3**	**Step 4**	**Step 1**	**Step 2**	**Step 3**	**Step 4**	**Step 1**	**Step 2**	**Step 3**	**Step 4**
Intercept	−1.836***	1.349***	−2.253***	−2.257***	−1.831***	1.357***	−2.253***	−2.255***	−1.832***	1.361***	−2.253***	−2.256***	−1.828***	1.369***	−2.253***	−2.252***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$\#directorship_{t-1}$	0.005**	0.012**		0.002												
	(0.041)	(0.023)		(0.478)												
$\%busyIDs\ (cut\text{-}off\ 3)_{t-1}$					0.013*	0.036**		0.006								
					(0.080)	(0.018)		(0.511)								
$\%busyIDs\ (cut\text{-}off\ 4)_{t-1}$									0.019**	0.038**		0.014				
									(0.023)	(0.033)		(0.162)				
$\%busyIDs\ (cut\text{-}off\ 5)_{t-1}$													0.021**	0.041*		0.013
													(0.046)	(0.059)		(0.292)
$LCETR3_{t-1}$			0.048***	0.047***			0.048***	0.047***			0.048***	0.047***			0.048***	0.047***
			(0.000)	(0.000)			(0.000)	(0.000)			(0.000)	(0.000)			(0.000)	(0.000)
$Ln(board\ size)_{t-1}$	−0.014	−0.023	−0.048**	−0.047**	−0.014	−0.021	−0.048**	−0.047**	−0.014	−0.023	−0.048**	−0.047**	−0.014	−0.023	−0.048**	−0.047**
	(0.371)	(0.506)	(0.017)	(0.018)	(0.382)	(0.549)	(0.017)	(0.019)	(0.368)	(0.508)	(0.017)	(0.019)	(0.374)	(0.502)	(0.017)	(0.019)
$\%IDs_{t-1}$	0.042	0.129	0.071	0.072	0.041	0.127	0.071	0.072	0.043	0.131	0.071	0.074	0.040	0.125	0.071	0.072
	(0.364)	(0.191)	(0.175)	(0.168)	(0.378)	(0.198)	(0.175)	(0.168)	(0.356)	(0.186)	(0.175)	(0.158)	(0.380)	(0.205)	(0.175)	(0.167)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed level	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster at firm level	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9740	6850	6057	6057	9740	6850	6057	6057	9740	6850	6057	6057	9740	6850	6057	6057
R-square	0.833	0.704	0.858	0.858	0.833	0.704	0.858	0.858	0.833	0.704	0.858	0.858	0.833	0.704	0.858	0.858
Adjusted *R*-square	0.790	0.615	0.812	0.812	0.790	0.615	0.812	0.812	0.790	0.615	0.812	0.812	0.790	0.615	0.812	0.812

Note: This table presents the results on the mediating effect of CTA on the relationship between board "busyness" and debt financing levels using the Baron and Kenny (1986) four-step mediation model. However, in these tests, the CTA variable is measured by an alternative proxy: *LCRTR3* (a firm's cash payment for taxes over a 3-year period and the sum of its total pretax income over the same period). The models are estimated using year-firm-industry fixed effects and clustering at the firm level. *p*-values are presented in parentheses. The definitions and measurements of all variables are presented in Appendix A.

***, ** and * represent the significance levels of 1%, 5%, and 10%, respectively.

TABLE 10 Underlying channel analysis.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
VARIABLES	Step 1	Step 2	Step 3	Step 4	Step 1	Step 2	Step 3	Step 4	Step 1	Step 2	Step 3	Step 4	Step 1	Step 2	Step 3	Step 4
Intercept	0.461***	0.173***	0.399***	−1.936***	0.460***	0.176***	0.399***	−1.931***	0.459***	0.176***	0.399***	−1.931***	0.459***	0.178***	0.399***	−1.925***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$\#directorship_{t-1}$	−0.001	0.003**		0.004*												
	(0.713)	(0.041)		(0.092)												
$\%AF\text{-}experts_{t-1}$	−0.163***	−0.012		0.015	−0.113***	−0.002		0.025	−0.097***	−0.002		0.021	−0.086***	−0.010		0.024
	(0.000)	(0.526)		(0.631)	(0.000)	(0.849)		(0.211)	(0.000)	(0.830)		(0.246)	(0.000)	(0.249)		(0.187)
$\#directorship_{t-1}$ * $\%AF\text{-}experts_{t-1}$	0.043***	0.005		0.003												
	(0.000)	(0.535)		(0.807)												
$\%busyIDs\ (cut\text{-}off\ 3)_{t-1}$					−0.001	0.009**		0.017**								
					(0.837)	(0.039)		(0.031)								
$\%busyIDs\ (cut\text{-}off\ 3)_{t-1}$ * $\%AF\text{-}Experts_{t-1}$					0.141***	0.002		−0.014								
					(0.837)	(0.039)		(0.031)								
$\%busyIDs\ (cut\text{-}off\ 4)_{t-1}$									0.001	0.014***		0.019**				
									(0.932)	(0.008)		(0.033)				
$\%busyIDs\ (cut\text{-}off\ 4)_{t-1}$ * $\%AF\text{-}experts_{t-1}$									0.148***	0.005		0.009				
									(0.003)	(0.882)		(0.866)				
$\%busyIDs\ (cut\text{-}off\ 5)_{t-1}$													−0.001	0.006		0.016
													(0.911)	(0.421)		(0.143)
$\%busyIDs\ (cut\text{-}off\ 5)_{t-1}$ * $\%AF\text{-}experts_{t-1}$													0.136**	0.089*		−0.045
													(0.044)	(0.061)		(0.491)
$GAAP\ ETR_{t-1}$			0.184***	0.029**			0.184***	0.029**			0.184***	0.029**			0.184***	0.028**
			(0.000)	(0.024)			(0.000)	(0.024)			(0.000)	(0.023)			(0.000)	(0.024)

(Continues)

TABLE 10 (Continued)

VARIABLES	(1) Step 1	(2) Step 2	(3) Step 3	(4) Step 4	(5) Step 1	(6) Step 2	(7) Step 3	(8) Step 4	(9) Step 1	(10) Step 2	(11) Step 3	(12) Step 4	(13) Step 1	(14) Step 2	(15) Step 3	(16) Step 4
Control variables	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes
Year fixed effect	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes
Firm fixed level	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes
Industry fixed effect	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes
Cluster at firm level	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes
Observations	27,614	23,215	23,870	9492	27,614	23,215	23,870	9492	27,614	23,215	23,870	9492	27,614	23,215	23,870	9492
R-square	0.003	0.000	0.017	0.855	0.003	0.000	0.017	0.855	0.002	0.000	0.017	0.855	0.002	0.000	0.017	0.855
Adjusted *R*-square	0.003	0.0001	0.0170	0.817	0.00253	0.000120	0.0170	0.817	0.00234	0.000270	0.0170	0.817	0.00211	0.000168	0.0170	0.817

Note: This table empirically examines the underlying channel by providing additional tests on the moderating effect of board accounting and financial (A&F) expertise on the relationship between board "busyness" and debt financing levels using the Baron and Kenny (1986) four-step mediation model. An ID is classified as an A&F expertise if he/she has some current or past experiences to serve the following positions: accountant or senior accountant, CFA, ACCA, auditor or senior auditor, financial management and planning, and tax-agent. Based on this, the board-level A&F expertise is measured by *%AF-Experts* (i.e., the percentage of A&F ID experts). *p*-values are presented in parentheses. The definitions and measurements of all variables are presented in Appendix A.

***, ** and * represent the significance levels of 1%, 5%, and 10%, respectively.

TABLE 11 The heterogenous effects of firm characteristics.

Panel I—The effect of firm size																
	Panel A: Large firms								*Panel B: Small firms*							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Variables	Step 1	Step 4	Step 1	Step 4	Step 1	Step 4	Step 1	Step 4	Step 1	Step 4	Step 1	Step 4	Step 1	Step 4	Step 1	Step 4
Intercept	−2.301***	−2.464***	−2.295***	−2.457***	−2.302***	−2.465***	−2.287***	−2.450***	−1.062***	−1.310***	−1.061***	−1.313***	−1.054***	−1.312***	−1.061***	−1.314***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.003)	(0.000)	(0.003)	(0.000)	(0.003)	(0.000)	(0.002)	(0.000)
$\#directorship_{t-1}$	0.007***	0.007**							0.001	−0.002						
	(0.010)	(0.014)							(0.811)	(0.707)						
$\%busyIDs\ (cut\text{-}off\ 3)_{t-1}$			0.021**	0.021**							0.006	0.001				
			(0.014)	(0.015)							(0.568)	(0.903)				
$\%busyIDs\ (cut\text{-}off\ 4)_{t-1}$					0.022**	0.022**							0.020	0.005		
					(0.021)	(0.022)							(0.143)	(0.732)		
$\%busyIDs\ (cut\text{-}off\ 5)_{t-1}$							0.020*	0.016							−0.000	−0.014
							(0.079)	(0.163)							(0.985)	(0.467)
$GAAP\ ETR_{t-1}$		0.039***		0.040***		0.040***		0.040***		−0.015		−0.015		−0.015		−0.015
		(0.009)		(0.008)		(0.008)		(0.009)		(0.509)		(0.505)		(0.511)		(0.506)
Control variables (t)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed level	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster at firm level	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6114	5536	6114	5536	6114	5536	6114	5536	4047	3633	4047	3633	4047	3633	4047	3633
R-square	0.849	0.859	0.849	0.859	0.849	0.859	0.848	0.859	0.829	0.843	0.829	0.843	0.829	0.843	0.829	0.843
Adjusted R-square	0.805	0.816	0.805	0.816	0.805	0.816	0.805	0.815	0.762	0.779	0.762	0.779	0.762	0.779	0.762	0.779

(Continues)

TABLE 11 (Continued)

Panel II—The effect of firm age																
	Panel A: Mature firms								*Panel B: Young firms*							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Variables	Step 1	Step 4	Step 1	Step 4	Step 1	Step 4	Step 1	Step 4	Step 1	Step 4	Step 1	Step 4	Step 1	Step 4	Step 1	Step 4
Intercept	−1.918***	−2.225***	−1.897***	−2.203***	−1.907***	−2.222***	−1.895***	−2.196***	−1.659***	−1.789***	−1.659***	−1.790***	−1.661***	−1.736***	−1.658***	−1.790***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$\#directorship_{t-1}$	0.008**	0.008**							−0.000	−0.000						
	(0.011)	(0.013)							(0.892)	(0.959)						
$\%busyIDs\ (cut\text{-}off\ 3)_{t-1}$			0.022**	0.024**							0.001	0.003				
			(0.022)	(0.013)							(0.890)	(0.772)				
$\%busyIDs\ (cut\text{-}off\ 4)_{t-1}$					0.029***	0.025**							0.010	0.010		
					(0.006)	(0.030)							(0.418)	(0.379)		
$\%busyIDs\ (cut\text{-}off\ 5)_{t-1}$							0.030**	0.025*							0.002	−0.003
							(0.030)	(0.056)							(0.908)	(0.867)
$GAAP\ ETR_{t-1}$		0.031**		0.031**		0.032**		0.031**		0.036*		0.036*		0.029*		0.036*
		(0.044)		(0.042)		(0.050)		(0.043)		(0.068)		(0.067)		(0.085)		(0.069)
Control variables (*t*)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed level	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster at firm level	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6965	6206	6965	6206	6965	5515	6965	6206	3220	2984	3220	2984	3220	3642	3220	2984
R-square	0.835	0.857	0.835	0.857	0.835	0.857	0.835	0.857	0.896	0.899	0.896	0.899	0.897	0.898	0.896	0.899
Adjusted *R*-square	0.786	0.811	0.785	0.811	0.785	0.809	0.785	0.811	0.854	0.857	0.854	0.857	0.854	0.858	0.854	0.857

Note: This table reports results on the heterogenous effects of firm characteristics on the relationship between board "busyness" and debt financing levels using the Baron and Kenny (1986) four-step mediation model. Standard errors are adjusted for autocorrelation and heteroscedasticity. *p*-values are presented in parentheses. The definitions and measurements of all variables are presented in Appendix A.

***, ** and * represent the significance levels of 1%, 5%, and 10%, respectively.

TABLE 12 Clustering standard errors at the industry level.

	Step 1				*Step 2*				*Step 3*	*Step 4*			
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*
Variables	*Liabilities over assets*	*Liabilities over assets*	*Liabilities over assets*	*Liabilities over assets*	*GAAP ETR*	*GAAP ETR*	*GAAP ETR*	*GAAP ETR*	*Liabilities over assets*	*Liabilities over assets*	*Liabilities over assets*	*Liabilities over assets*	*Liabilities over assets*
Intercept	−1.799***	−1.793***	−1.793***	−1.790***	0.212**	0.220**	0.218**	0.224**	−1.926***	−1.932***	−1.928***	−1.928***	−1.924***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.040)	(0.034)	(0.035)	(0.032)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$\#directorship_{t-1}$	0.005**				0.005**					0.004*			
	(0.021)				(0.032)					(0.053)			
$\%busyIDs\ (cut\text{-}off\ 3)_{t-1}$		0.014*				0.007					0.015*		
		(0.055)				(0.311)					(0.064)		
$\%busyIDs\ (cut\text{-}off\ 4)_{t-1}$			0.021**				0.016*					0.018**	
			(0.013)				(0.086)					(0.019)	
$\%busyIDs\ (cut\text{-}off\ 5)_{t-1}$				0.019**				0.019					0.013
				(0.025)				(0.121)					(0.131)
$GAAP\ ETR_{t-1}$									0.029**	0.028**	0.028**	0.028**	0.028**
									(0.015)	(0.018)	(0.016)	(0.015)	(0.016)
Ln(board size)	−0.012	−0.012	−0.012	−0.012	−0.014	−0.014	−0.014	−0.015	−0.015	−0.015	−0.015	−0.015	−0.015
	(0.538)	(0.534)	(0.542)	(0.537)	(0.210)	(0.199)	(0.211)	(0.197)	(0.419)	(0.430)	(0.432)	(0.432)	(0.422)
%IDs	0.021	0.019	0.022	0.021	0.057	0.054	0.057	0.055	0.012	0.015	0.013	0.015	0.014
	(0.672)	(0.696)	(0.660)	(0.675)	(0.239)	(0.260)	(0.235)	(0.255)	(0.821)	(0.784)	(0.804)	(0.773)	(0.795)
% Shares held by board of directors	−0.021	−0.023	−0.022	−0.022	0.002	0.000	0.001	0.001	−0.007	−0.005	−0.006	−0.006	−0.006
	(0.420)	(0.385)	(0.395)	(0.397)	(0.917)	(0.993)	(0.969)	(0.952)	(0.813)	(0.866)	(0.834)	(0.845)	(0.839)
% Shares held by executives	−0.031	−0.030	−0.031	−0.032	0.022	0.024	0.023	0.022	−0.021	−0.021	−0.020	−0.022	−0.022
	(0.245)	(0.262)	(0.243)	(0.233)	(0.288)	(0.266)	(0.287)	(0.310)	(0.346)	(0.332)	(0.358)	(0.328)	(0.322)

(Continues)

TABLE 12 (Continued)

	Step 1				Step 2				Step 3	Step 4			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Variables	*Liabilities over assets*	*Liabilities over assets*	*Liabilities over assets*	*Liabilities over assets*	*GAAP ETR*	*GAAP ETR*	*GAAP ETR*	*GAAP ETR*	*Liabilities over assets*	*Liabilities over assets*	*Liabilities over assets*	*Liabilities over assets*	*Liabilities over assets*
% State ownership	−0.079***	−0.079***	−0.079***	−0.079***	−0.009	−0.009	−0.009	−0.009	−0.062***	−0.061***	−0.061***	−0.061***	−0.061***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.537)	(0.530)	(0.559)	(0.558)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
% Foreign ownership	−0.069*	−0.069*	−0.070*	−0.070*	−0.007	−0.008	−0.008	−0.008	−0.064	−0.062	−0.062	−0.063	−0.064
	(0.092)	(0.095)	(0.091)	(0.085)	(0.881)	(0.869)	(0.866)	(0.869)	(0.141)	(0.150)	(0.155)	(0.147)	(0.141)
Ln(total assets)	0.096***	0.096***	0.096***	0.096***	0.002	0.002	0.002	0.002	0.102***	0.102***	0.102***	0.102***	0.102***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.652)	(0.635)	(0.643)	(0.657)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Ln(firm age)	0.049***	0.049***	0.049***	0.049***	−0.025	−0.024	−0.024	−0.025	0.046***	0.045**	0.045**	0.045**	0.045**
	(0.009)	(0.009)	(0.008)	(0.008)	(0.270)	(0.278)	(0.281)	(0.275)	(0.010)	(0.012)	(0.011)	(0.011)	(0.010)
PPE/assets	0.171***	0.171***	0.171***	0.171***	0.012	0.012	0.012	0.012	0.159***	0.159***	0.159***	0.159***	0.159***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.560)	(0.548)	(0.552)	(0.563)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Cash/assets	−0.210***	−0.210***	−0.210***	−0.210***	0.010	0.009	0.009	0.009	−0.215***	−0.215***	−0.215***	−0.215***	−0.215***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.640)	(0.643)	(0.652)	(0.651)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Intangible/assets	0.208***	0.208***	0.208***	0.209***	0.022	0.022	0.022	0.025	0.167**	0.168**	0.167**	0.168**	0.169**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.804)	(0.801)	(0.805)	(0.780)	(0.048)	(0.045)	(0.045)	(0.047)	(0.046)
R&D/Assets	0.085	0.089	0.088	0.085	−0.125	−0.129	−0.123	−0.125	0.115	0.118	0.122	0.119	0.119
	(0.807)	(0.799)	(0.802)	(0.804)	(0.612)	(0.604)	(0.614)	(0.616)	(0.727)	(0.724)	(0.716)	(0.724)	(0.719)
Return-on-equity ratio	−0.041	−0.041	−0.042	−0.042	−0.300***	−0.300***	−0.300***	−0.301***	−0.037	−0.037	−0.036	−0.037	−0.037
	(0.203)	(0.204)	(0.198)	(0.195)	(0.000)	(0.000)	(0.000)	(0.000)	(0.233)	(0.232)	(0.236)	(0.228)	(0.228)

(Continues)

TABLE 12 (Continued)

	Step 1				*Step 2*				*Step 3*	*Step 4*			
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*
Variables	*Liabilities over assets*	*Liabilities over assets*	*Liabilities over assets*	*Liabilities over assets*	*GAAP ETR*	*GAAP ETR*	*GAAP ETR*	*GAAP ETR*	*Liabilities over assets*	*Liabilities over assets*	*Liabilities over assets*	*Liabilities over assets*	*Liabilities over assets*
Dividend distribution ratio	−0.005**	−0.005**	−0.005**	−0.005**	−0.006*	−0.006*	−0.006*	−0.006*	−0.003*	−0.003*	−0.003*	−0.003*	−0.003*
	(0.013)	(0.015)	(0.015)	(0.013)	(0.054)	(0.055)	(0.056)	(0.054)	(0.090)	(0.089)	(0.096)	(0.098)	(0.088)
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed level	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster at industry level	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,503	10,503	10,503	10,503	9863	9863	9863	9863	9501	9501	9501	9501	9501
R-squared	0.837	0.837	0.837	0.837	0.411	0.411	0.411	0.411	0.855	0.855	0.855	0.855	0.855
Ajusted *R*-squared	0.797	0.797	0.798	0.797	0.261	0.260	0.260	0.260	0.817	0.817	0.817	0.817	0.817

Note: This table reports regression results when clustering standard errors at the industry level. *p*-values are presented in parentheses. The definitions and measurements of all variables are presented in Appendix A.

***, ** and * represent the significance levels of 1%, 5%, and 10%, respectively.

composition factors (i.e., board "busyness," independence, and size) and dependent variables (i.e., CTA and debt financing levels). For instance, while the "busyness" of IDs could reduce firms' CTA behavior and increase their debt financing levels, firms with lower CTA behavior and higher debt levels may prefer employing busy IDs due to their reputation. Therefore, we follow past research (e.g., Bradley & Chen, 2011; Chakravarty & Rutherford, 2017; Dittmar & Mahrt-Smith, 2007) to initially lag board composition variables (or main independent variables) by 1-year in our main analyses to determine the directions of causality for our results. Furthermore, we employ four additional and alternative methods: (1) DID model specifications, (2) 2SLS, (3) two-step Heckman, and (4) PSM.

5.6.1 | DIDs regressions

We first undertook DID regressions using the exogenous shock related to the nationwide anti-corruption campaign, including the forced resignation of politically connected IDs as required by the enforcement of Rule 18 in 2013. This regulatory change potentially increased the number of directorships that other IDs had to take, due to the decreased availability of government officials to serve as IDs. We treat this event as a quasi-natural experiment in which our DID framework will utilize two-dimensional variations: "board busyness" across firms (i.e., busy vs. nonbusy boards) and time (i.e., before and after 2013). The use of such a regulatory shock as a quasi-natural experiment allows us to identify causality and thus address the endogeneity problem (see Liu et al., 2021).

Our baseline DID model is specified as below:

Step 1:

$$liabilities\ over\ assets_{it} = \alpha + \beta_1 Busy_{dummy_{it}} * Post2013_{it} + \beta_2 Busy_{dummy_{it}} + \beta_3 Post2013_{it} + (Industry)_{it} + \varepsilon_{it} \quad (5)$$

Step 2:

$$GAAP\ ETR_{dummy_{it}} = \alpha + \beta_1 Busy_{dummy_{it}} * Post2013_{it} + \beta_2 Busy_{dummy_{it}} + \beta_3 Post2013_{it} + (Industry)_{it} + \varepsilon_{it} \quad (6)$$

Step 3:

$$liabilities\ over\ assets_{it} = \alpha + \beta_1 GAAP\ ETR_{dummy_{it}} * Post2013_{it} + \beta_2 GAPP\ ETR_{it} + \beta_3 Post2013_{it} + (Industry)_{it} + \varepsilon_{it} \quad (7)$$

Step 4:

$$liabilities\ over\ assets_{it} = \alpha + \beta_1 Busy_{dummy_{it}} * Post2013_{it} + \beta_2 Busy_{dummy_{it}} + \beta_3 \text{Post2013}_{it} + \beta_4 GAAP\ ETR_{dummy_{it}} + (Controls)_{it} + (Industry)_{it} + \varepsilon_{it} \quad (8)$$

where $\text{Busy}_{\text{dummy}_{it}}$ is the measure of board "busyness" dummy of firm *i* in year *t*, which is a dummy indicator that denotes the value of 1 if the firm has busy boards (≥ 50% busy IDs—with the cut-off of 4 directorships) and 0 otherwise. Similarly, $\text{GAAP ETR}_{\text{dummy}_{it}}$ is the measure of CTA dummy of firm *i* in year *t*, which is a dummy indicator that denotes the value of 1 if the observed GAAP ETR is equal to or higher than its p75 value, and 0 otherwise. $Post2013_{it}$ is an indicator that denotes the value of 1 if year *t* is in the post-2013 period, and 0 otherwise. The coefficient of interest (the interaction term between board "busyness" dummy and post-2013 variable) in Equations (5)–(6) and Equation (8)

TABLE 13 Difference-in-differences regressions.

ATET estimate adjusted for covariates	(3) Step 1 Liabilities over assets	(4) Step 2 GAAP ETR (dummy)	(3) Step 3 Liabilities over assets	(4) Step 4 Liabilities over assets
DID [Busy_board (cut-off 4) **post-2013]***	0.038***	0.049**		0.029**
	(0.002)	(0.042)		(0.020)
*DID [GAAP ETR (dummy) * **post-2013]***			0.021***	
			(0.005)	
Control variables	No	No	No	Yes
Industry fixed effect	Yes	Yes	Yes	Yes
Observations	30,496	30,499	31,454	10,690

Note: This table presents the results for difference-in-differences regressions. The exogenous shock in China is considered, which includes the event that Chinese government officials were banned from serving as independent directors in 2013. Standard errors are adjusted for autocorrelation and heteroscedasticity. *p*-values are presented in parentheses. The definitions and measurements of all variables are presented in Appendix A.
***, ** and * represent the significance levels of 1%, 5%, and 10%, respectively.

is β_1, which captures the change in financial leverage of firms (or CTA behavior) with busy boards relative to that with "non-busy" boards following the regulatory event of 2013.

Table 13 reports the DID results[10] (i.e., ATET[11] estimate adjusted for covariates). We find that firms with busy boards increase their debt levels relative to their peers with "non-busy" boards following the 2013 regulatory event. Furthermore, Step 4 in each panel shows that such a significant level becomes less significant after adding CTA (GAAP ETR), indicating a significant and partial mediating effect of CTA on the relationship between board "busyness" and debt following the shock. In sum, our quasi-experiment validates our main findings.

5.6.2 | 2SLS analysis

Next, we perform a 2SLS analysis, which utilizes the exogenous instrumental variables (IVs), to address the potentially endogenous association between board "busyness" measures and dependent variables in our paper, including CTA and firm leverage. We follow prior studies (e.g., Chakravarty & Rutherford, 2017; Hermalin & Weisbach, 2003) to treat potential endogeneity problems inherent with all board characteristics (i.e., board busyness, board size, and independence) because these variables are found to be endogenous with debt level and CTA. In this study, we adopt the IV(s)[12] that align with previous research on board "busyness" (e.g., Chakravarty & Rutherford, 2017; Fields et al., 2012). Specifically, our study builds a "board quality index" variable by allocating values to each board quality variable (i.e., board "busyness," board size, and independence). If the variable has values higher than its cross-sectional median, we will assign a value of one and zero otherwise. As such, the new "board quality index" variable has a value falling between zero and three. However, as argued by Chakravarty and Rutherford (2017), while our study focuses on the

[10] We used the ***didregress*** command in STATA to estimate the ATET, incorporating adjustments for covariates.

[11] Average treatment effect on the treated.

[12] We need to find valid IV(s) for each board characteristic that satisfy two conditions: they are correlated with the suspected endogenous variables but uncorrelated with the error terms of dependent variables (CTA and debt financing levels). However, as previous research in this field discussed, identifying IVs that meet both criteria for each predicted endogenous variable is challenging, especially condition (ii), because the error term is unobserved. Consistent with Elyasiani and Zhang (2015) and Wooldridge (2012), we assess the strength of our IV through a first-stage regression using an F-test. The F-test yields a value of 0.000, indicating the strength of our IV(s). However, we are unable to directly test the validity of our IV using the Sargan procedure, as our model is exactly identified, with only one IV for our endogenous factor (see Elyasiani & Zhang, 2015).

TABLE 14 Two-stage least square analysis.

*Dependent variable = liabilities over assets*Step 2 and 3: available upon request				
	IV:LnCity		IV:LnProvince	
	(1)	(2)	(3)	(4)
Parameter	Step 1	Step 4	Step 1	Step 4
Intercept	−1.095***	−1.118***	−1.099***	−1.120***
	(0.000)	(0.000)	(0.000)	(0.000)
Board busyness residuals	0.056*	0.039	0.052*	0.038
	(0.054)	(0.149)	(0.071)	(0.166)
GAAP ETR		0.109***		0.109***
		(0.000)		(0.000)
Control variables (*t*)	Yes	Yes	Yes	10,085
Observations	10,690	10,085	10,690	10,086
R-square	0.375	0.400	0.378	
Adjusted *R*-square	0.374	0.399	0.377	0.396

Note: This table presents the results on the 2SLS analysis. To do these tests, we construct a new "board quality index" variable by allocating values to each of the board quality variables (i.e., board "busyness," board size, and independence). If the variable has values that are higher than its cross-sectional median, we will assign a value of one and zero otherwise. We take a step further to extract the board's "busyness" attribute from the board quality index by conducting a regression test of the other two board characteristics (i.e., size and independence) on such index. We then capture its error terms by the orthogonality property. The IVs for the board quality index (board "busyness" residuals) are the natural logarithm of the number of listed firms in the same city (LnCity) or province (LnProvince) where the observed firm is headquartered. For brevity, only two steps (1 and 4) of Baron and Kenny (1986) four-step mediation model are reported. *p*-values are presented in parentheses. The definitions and measurements of all variables are presented in Appendix A.
***, ** and * represent the significance levels of 1%, 5%, and 10%, respectively.

impact of board "busyness," the association between the board quality index and corporate financial leverage cannot be clearly discerned. We address this issue by taking a step further to extract a board "busyness" attribute from the board quality index through regression estimation of the other two board characteristics, namely size and independence, on this index. We then capture its error terms by leveraging the orthogonality property. We expect that these error terms reflect the board "busyness" aspect of the constructed board quality index. This step is essential because it allows us to clearly distinguish the board "busyness" from the other two board-related variables. Therefore, a new instrumental variable, specifically, "Board Busyness Residuals," is created from these error terms and employed in our 2SLS estimations.

Consistent with Elyasiani and Zhang (2015), we employ the number of public firms headquartered in the same city (in natural logarithm form) or the number of public firms headquartered in the same province (in natural logarithm form) as an instrument for the board quality index variable ("Board Busyness Residuals"). According to Elyasiani and Zhang (2015), directors of firms headquartered in cities (or provinces) with many business firms are more likely to find director positions in other firms. Thus, we expect that the number/percentage of busy IDs of firms is positively associated with the number of public firms headquartered in the same city (province). Consistent with Elyasiani and Zhang (2015), we also contend that the selected IV is unlikely to affect an individual firm's CTA and financial leverage. Table 14 reports the results.

We perform different tests using IVs in separate models: LnCity (models 1–2) and LnProvince (models 3–4). We do not add LnCity and LnProvince to the same test because the number of listed firms in the same province may include

the number of listed firms in the same city. We find that the board "busyness" residuals variable positively relates to liabilities over assets, but the significance level turns insignificant in Step 4 (after adding GAAP_ETR). These results indicate that board "busyness" leads to higher debt financing levels through moderating CTA behavior. Therefore, we are confident that our main results are not influenced by the presence of endogeneity problems arising from board quality variables.

5.6.3 | Heckman two-step analysis

We further utilize the Heckman two-step approach to address potential sample selection biases. In the first stage, we estimate a probit model with the busy boards dummy [i.e., *Busy_dummy* (#directorship)] as the dependent variable, while using the instrument variable (*LnCity*), corporate governance factors, and firm-specific characteristics as controls. The estimated parameters are then used to compute the inverse Mills ratio (IMR), which is incorporated as an additional independent variable in the second-stage regression. The second-stage results, reported in Table 15, generally align with those of the main regressions. This methodology enables us to confirm that our primary findings remain robust, even after accounting for sample selection biases.

5.6.4 | Regressions on matched samples

We finally conduct the three-step PSM analysis (Rosenbaum & Rubin, 1983) to address the possible issues of sample selection bias and endogeneity.[13] In the first step, we utilize a probit regression of a binary response variable, that is, Busy_dummy (*#directorship*) taking the value of 1 if *#directorship* is equal to or higher than its mean value and 0 otherwise ("non-busy" board), to construct matches and estimate the propensity scores for firms with busy boards and those with "non-busy" boards, which is in line with prior research (e.g., Chakravarty & Rutherford, 2017; Rosenbaum & Rubin, 1983). The propensity scores should equate to the probability that a firm with given characteristics has busy boards. In the second step, we use one-to-one nearest-neighbor matching with replacement ($n = 1$) to match the samples: each observation with busy boards to the observation with "non-busy" boards. The unit selected from observations with "non-busy" boards (i.e., unit x from the control group) as a match for observations with busy boards (i.e., unit y from the treatment group) is the one closest regarding the propensity score. This procedure results in the following equation: $|p_x - p_y| = \min\{|p_x - p_z|\}, z \in \{S = 0\}$.[14]

In the third step, we estimate the average debt financing effects. Table 16 (Panel C) reports the multivariate regression tests on the matched sample in which we regress debt financing levels on the board busyness dummy and all control variables. For the first step of the mediation model, we find a significant and positive relationship between Busy_dummy (*#directorship*) and liabilities over assets. Such an effect turns insignificant in the fourth step of the mediation model, implying a full mediating impact of CTA. This evidence is consistent with the hypothesis suggesting a positive effect of board busyness on a firm's debt levels and the mediating role of CTA in this relationship. The results also indicate significant differences in the characteristics of firms with busy boards compared to those with nonbusy boards, leading to differential effects on the debt policies of the two categories of firms.

[13] The issues could arise from the possibility that busy IDs might not be randomly distributed across companies. In addition, some of the factors in our empirical models are not only associated with the appointments of busy IDs but are also related to corporate financial leverage levels. Furthermore, as mentioned earlier, it is also possible that there is a reverse causal relationship between board "busyness" and leverage.

[14] For brevity, details regarding our score estimation and matching procedures will be provided upon request.

TABLE 15 Heckman two-step analysis.

	Step 1				Step 2				Step 3	Step 4			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Variables	*Liabilities over assets*	*Liabilities over assets*	*Liabilities over assets*	*Liabilities over assets*	*GAAP ETR*	*GAAP ETR*	*GAAP ETR*	*GAAP ETR*	*Liabilities over assets*	*Liabilities over assets*	*Liabilities over assets*	*Liabilities over assets*	*Liabilities over assets*
Intercept	−2.017***	−2.012***	−2.011***	−2.015***	0.204	0.210	0.210	0.208	−2.552***	−2.092***	−2.089***	−2.088***	−2.089***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.320)	(0.308)	(0.307)	(0.311)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$\#directorship_{t-1}$	0.005**				0.005**					0.004*			
	(0.038)				(0.042)					(0.063)			
$\%busyIDs\ (cut\text{-}off\ 3)_{t-1}$		0.014**				0.007					0.015**		
		(0.048)				(0.337)					(0.031)		
$\%busyIDs\ (cut\text{-}off\ 4)_{t-1}$			0.021***				0.016*					0.018**	
			(0.010)				(0.080)					(0.022)	
$\%busyIDs\ (cut\text{-}off\ 5)_{t-1}$				0.020*				0.019					0.013
				(0.053)				(0.108)					(0.198)
$GAAP\ ETR_{t-1}$									0.029**	0.028**	0.028**	0.028**	0.028**
									(0.020)	(0.026)	(0.026)	(0.025)	(0.025)
Ln(board size)	−0.020	−0.020	−0.019	−0.020	−0.014	−0.015	−0.014	−0.015	0.005	−0.021	−0.021	−0.021	−0.021
	(0.239)	(0.236)	(0.243)	(0.231)	(0.393)	(0.383)	(0.398)	(0.374)	(0.778)	(0.250)	(0.251)	(0.253)	(0.240)
%IDs	−0.019	−0.021	−0.018	−0.020	0.055	0.052	0.055	0.053	0.097**	−0.014	−0.016	−0.014	−0.016
	(0.735)	(0.708)	(0.748)	(0.714)	(0.344)	(0.368)	(0.344)	(0.366)	(0.049)	(0.796)	(0.771)	(0.807)	(0.772)
% Shares held by board of directors	−0.031	−0.032	−0.031	−0.031	0.002	−0.000	0.000	0.001	−0.107***	−0.012	−0.013	−0.012	−0.013
	(0.256)	(0.233)	(0.241)	(0.238)	(0.940)	(0.992)	(0.985)	(0.979)	(0.000)	(0.653)	(0.620)	(0.632)	(0.621)
% Shares held by executives	−0.010	−0.009	−0.010	−0.010	0.023	0.025	0.023	0.023	−0.160***	−0.006	−0.005	−0.006	−0.006
	(0.771)	(0.802)	(0.770)	(0.772)	(0.464)	(0.435)	(0.459)	(0.459)	(0.000)	(0.851)	(0.888)	(0.847)	(0.854)
% State ownership	−0.115***	−0.115***	−0.114***	−0.116***	−0.010	−0.011	−0.010	−0.011	−0.040**	−0.088***	−0.088***	−0.087***	−0.088***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.758)	(0.748)	(0.767)	(0.741)	(0.013)	(0.002)	(0.002)	(0.002)	(0.002)
% Foreign ownership	−0.102**	−0.102**	−0.103**	−0.104**	−0.009	−0.010	−0.010	−0.010	−0.125***	−0.086*	−0.087*	−0.087*	−0.088*
	(0.043)	(0.043)	(0.042)	(0.038)	(0.866)	(0.850)	(0.851)	(0.838)	(0.003)	(0.093)	(0.093)	(0.091)	(0.086)
Ln(total assets)	0.103***	0.103***	0.103***	0.103***	0.002	0.002	0.002	0.003	0.115***	0.107***	0.107***	0.107***	0.107***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.745)	(0.727)	(0.737)	(0.723)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Ln(firm age)	0.056***	0.057***	0.057***	0.057***	−0.025	−0.024	−0.024	−0.024	0.092***	0.050**	0.051**	0.051**	0.051**
	(0.004)	(0.003)	(0.003)	(0.003)	(0.222)	(0.231)	(0.232)	(0.231)	(0.000)	(0.015)	(0.014)	(0.014)	(0.014)

(Continues)

TABLE 15 (Continued)

	Step 1				Step 2				Step 3	Step 4			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Variables	*Liabilities over assets*	*Liabilities over assets*	*Liabilities over assets*	*Liabilities over assets*	*GAAP ETR*	*GAAP ETR*	*GAAP ETR*	*GAAP ETR*	*Liabilities over assets*	*Liabilities over assets*	*Liabilities over assets*	*Liabilities over assets*	*Liabilities over assets*
PPE/assets	0.153***	0.153***	0.153***	0.152***	0.011	0.011	0.011	0.010	0.097***	0.146***	0.146***	0.145***	0.145***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.654)	(0.648)	(0.648)	(0.675)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Cash/assets	−0.227***	−0.227***	−0.227***	−0.228***	0.009	0.009	0.009	0.008	−0.317***	−0.227***	−0.227***	−0.228***	−0.228***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.676)	(0.686)	(0.690)	(0.710)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Intangible/assets	0.162**	0.162**	0.162**	0.162**	0.020	0.020	0.020	0.022	0.371***	0.135*	0.134*	0.135*	0.135*
	(0.036)	(0.037)	(0.036)	(0.036)	(0.790)	(0.791)	(0.792)	(0.778)	(0.000)	(0.071)	(0.072)	(0.071)	(0.071)
R&D/assets	0.286	0.292	0.288	0.293	−0.117	−0.119	−0.115	−0.111	−2.567***	0.265	0.271	0.266	0.271
	(0.429)	(0.421)	(0.427)	(0.418)	(0.758)	(0.754)	(0.762)	(0.770)	(0.000)	(0.460)	(0.451)	(0.460)	(0.451)
Return-on-equity ratio	−0.030	−0.030	−0.031	−0.031	−0.299***	−0.299***	−0.300***	−0.300***	−0.496***	−0.029	−0.028	−0.029	−0.029
	(0.268)	(0.275)	(0.261)	(0.262)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.347)	(0.361)	(0.342)	(0.346)
Dividend distribution ratio	−0.001	−0.001	−0.001	−0.000	−0.006	−0.006	−0.006	−0.006	−0.014***	0.000	0.000	0.000	0.000
	(0.863)	(0.885)	(0.878)	(0.890)	(0.150)	(0.156)	(0.156)	(0.159)	(0.000)	(1.000)	(0.976)	(0.984)	(0.982)
imr	0.100	0.101	0.100	0.104	0.004	0.005	0.004	0.007	0.174***	0.074	0.075	0.074	0.076
	(0.152)	(0.149)	(0.153)	(0.138)	(0.961)	(0.952)	(0.959)	(0.927)	(0.000)	(0.289)	(0.284)	(0.288)	(0.274)
Constant	−2.017***	−2.012***	−2.011***	−2.015***	0.204	0.210	0.210	0.208	−2.552***	−2.092***	−2.089***	−2.088***	−2.089***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.320)	(0.308)	(0.307)	(0.311)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed level	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster at firm level	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,503	10,503	10,503	10,503	9863	9863	9863	9863	9501	9501	9501	9501	9501
R-squared	0.837	0.837	0.837	0.837	0.411	0.411	0.411	0.411	0.856	0.855	0.855	0.855	0.855
Ajusted *R*-squared	0.798	0.798	0.798	0.797	0.261	0.260	0.260	0.260	0.819	0.817	0.817	0.817	0.817

Note: This table presents the results for the Heckman two-step analyses. *p*-values are presented in parentheses. The definitions and measurements of all variables are presented in Appendix A.
***, ** and * represent the significance levels of 1%, 5%, and 10%, respectively.

TABLE 16 Matched sample.

	Step 1	*Step 2*	*Step 3*	*Step 4*
Busy_dummy (#directorship)	0.008*	0.030**		0.007
	(0.079)	(0.037)		(0.108)
GAAP ETR			0.019***	0.022***
			(0.000)	(0.000)
Ln(board size)	−0.008	0.008	−0.026	−0.008
	(0.687)	(0.902)	(0.357)	(0.677)
%IDs	0.068	0.299	−0.016	0.061
	(0.268)	(0.114)	(0.826)	(0.312)
% Shares held by board of directors	−0.053	−0.022	−0.072	−0.052
	(0.109)	(0.772)	(0.225)	(0.113)
% Shares held by executives	−0.018	−0.053	−0.009	−0.017
	(0.689)	(0.545)	(0.902)	(0.707)
% State ownership	−0.070***	−0.119*	−0.129***	−0.067***
	(0.002)	(0.077)	(0.000)	(0.003)
% Foreign ownership	−0.089	0.181	−0.086	−0.093
	(0.149)	(0.434)	(0.416)	(0.126)
Ln(total assets)	0.095***	0.001	0.098***	0.095***
	(0.000)	(0.956)	(0.000)	(0.000)
Ln(firm age)	0.062***	0.079	0.013	0.060***
	(0.003)	(0.237)	(0.713)	(0.004)
PPE/assets	0.170***	0.093	0.155***	0.168***
	(0.000)	(0.163)	(0.000)	(0.000)
Cash/assets	−0.220***	−0.186***	−0.171***	−0.216***
	(0.000)	(0.002)	(0.000)	(0.000)
Intangible/assets	0.246***	−0.133	0.227**	0.249***
	(0.010)	(0.538)	(0.015)	(0.008)
R&D/assets	0.043	0.047	0.308	0.041
	(0.915)	(0.968)	(0.523)	(0.916)
Return-on-equity ratio	−0.043	−1.245***	−0.094***	−0.015
	(0.248)	(0.000)	(0.003)	(0.682)
Dividend distribution ratio	−0.004*	−0.012	−0.005*	−0.004
	(0.100)	(0.203)	(0.081)	(0.123)
Intercept	−1.841***	0.028	−1.680***	−1.842***
	(0.000)	(0.945)	(0.000)	(0.000)
Year fixed effect	Yes	Yes	Yes	Yes
Firm fixed level	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes
Cluster at firm level	Yes	Yes	Yes	Yes
Observations	7725	7725	4266	7725

(Continues)

TABLE 16 (Continued)

	Step 1	*Step 2*	*Step 3*	*Step 4*
R-square	0.855	0.557	0.853	0.856
Adjusted *R*-square	0.809	0.418	0.787	0.811

Note: This table presents the results for the PSM analyses. *p*-values are presented in parentheses. The definitions and measurements of all variables are presented in Appendix A.
***, ** and * represent the significance levels of 1%, 5%, and 10%, respectively.

6 | FURTHER DISCUSSION AND CONCLUSION

6.1 | Theoretical contributions

Using an unbalanced panel sample of listed firms in China over the period 2004–2019 and employing the Baron and Kenny (1986) four-step mediation model, we initially find that firms with higher levels of board "busyness" are more likely to have higher levels of debt financing, with CTA mediating this positive association. In other words, CTA serves as an underlying channel through which "busy" IDs, or board "busyness," can impact firms' decisions on increasing leverage. These main findings remain valid following the forced resignation of politically connected IDs in 2013. Moreover, our findings hold robust across a battery of empirical model specifications used to minimize the influence of endogeneity problems and sample selection bias.

Our findings add additional empirical insights into capital structure theories. We demonstrate that "busy" IDs may suggest increasing the usage of leverage for two possible reasons. On one hand, leverage represents an external monitoring tool complementing internal governance ability and efficiency in curtailing managerial entrenchment. On the other hand, "busy" IDs are concerned with their social reputation and are more likely to prevent or diminish managers' aggressive CTA behaviors due to its undesirable nature and potential to exacerbate agency and information asymmetry problems. As discussed before, reduced CTA cuts off free cash flows available for managers to run the firm, prompting them to consider taking on more external debt. Our results show that the positive association between "busy" IDs and leverage utility is mediated by decreasing CTA aggressiveness.

Our empirical study enriches prior research on the influence of board "busyness," particularly its "reputational incentive" hypothesis, which has received less empirical support than the "busyness" hypothesis in the literature. It shows that "busy" IDs are more concerned with their reputation in the Chinese market or in their respective fields; therefore, they are more motivated to advise, if not monitor, managers' propensity to engage in aggressive CTA behaviors. When aggressive CTA is detected by tax authorities and exposed to the public, the IDs' reputation will be jeopardized, if not ruined. Additionally, qualified IDs are required to have extensive expertise in accounting, auditing, finance, and law, and work experience in related areas. As such, "busier" IDs should have more ideas about how to effectively mitigate agency conflicts between insiders and outsiders. We find that "busy" IDs seek to reduce excessive CTA activities that would trigger more severe agency problems, as these activities involve more complex and opaque business transactions to pay less tax to the government.

6.2 | Practical implications

Our findings present practical implications for policymakers, shareholders, and corporate leaders worldwide, not limited to China. Nowadays, Chinese firms intensively engage in the global economy, and their potential impacts are enormous. Therefore, it is vital to understand how to improve Chinese firms' internal governance. Indeed, we offer empirical evidence on the controversial topic of the usefulness of IDs in China. The CSRC stipulates that an ID cannot accept more than five board directorships, as they may have inadequate time and energy to serve. Nevertheless, our

empirical results suggest that "busy" IDs and board "busyness" can simultaneously reduce unethical CTA and increase the external monitoring role of debt. Theoretically, busy IDs' reputational incentive is activated in the Chinese context, as all qualified IDs who are invited to join multiple boards are supposed to enjoy a respected social identity and personal reputation in their respective fields. We offer evidence that the busiest IDs with five directorships and firms with a board having more busy IDs appear more efficient in mitigating agency problems (leverage) and unethical behaviors such as CTA.

For example, the accusation that some busy IDs are absent from board meetings may not necessarily imply that they are too busy to serve their roles; in fact, they may refuse to attend the meeting as a way of voting "no" to predetermined decisions. As such, stock market regulators may need to consider the reputational incentive when limiting the number of board seats a qualified ID can accept. The government authority and the market need to enhance their reward and punishment systems to constrain the possibility of IDs serving as tokens or engaging in wrongdoing. Moreover, to facilitate firms' external financing needs, policymakers (e.g., the central government) need to strengthen the transparency of well-developed and healthy debt markets so that firm owners can employ leverage to finance business transactions and manage agency problems. Lenders can also continually acquire advanced skills and techniques to scrutinize borrowers' ability to fulfill contractual obligations. Additionally, firm leaders may consider appointing "busy" IDs to mitigate agency issues in emerging markets where respected individual IDs are concerned with their social identity and personal reputation. Furthermore, for shareholders and investors, board "busyness" may not necessarily be a bad sign for board efficiency when making their decisions.

6.3 | Limitations and future research

Our study is subject to limitations that may be relevant to future research in these areas. While our findings demonstrate the reputational incentives of "busy" IDs in Chinese listed firms (regarding firms' leverage and capital structure to enhance board efficiency and protect the interests of relevant stakeholders, including but not limited to shareholders and investors), the empirical results may not be reasonably generalized to other countries. However, our study represents a response to scholars' calls for more nuanced investigations into the possible effects of board "busyness" on the corporate decision-making process and outcomes across different social and political contexts (Cashman et al., 2012; Chakravarty & Rutherford, 2017; Elyasiani & Zhang, 2015; Ferris et al., 2003; Fich & Shivdasani, 2005; Trinh, 2022). As such, future research may continue to study the role of busy IDs in other emerging markets or particular industries, as well as the influence of other exogenous shocks on these associations. It would be interesting to consider the phenomenon that, in emerging economies, despite the fixed tax rate on corporate income, significant differences in local tax rates exist due to the prevailing government officials' discretion in granting preferential tax rates and enforcing tax regulations in specific industries or jurisdictions.

Additionally, while busy IDs tend to choose to use more leverage in the firms they serve, whether they can help firms obtain more accessible finance warrants more in-depth empirical investigations. As we cannot test whether more than five directorships can make IDs more efficient due to the CSRC's mandatory requirement, our empirical questions can be tested in a context where IDs are allowed to have more directorships. To our surprise, the CSRC recently announced a new policy in December 2023 that reduces the number of board seats an ID can accept from five to three. This may imply a detrimental role of busy IDs in other firm decisions and performance, but this policy warrants a revisit in future studies. Also, since different countries and contexts are subject to various institutional factors, future research may explore other underlying channels to explain the connections between board "busyness" and debt financing policies in different institutional contexts.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

Data may be available upon reasonable request.

ORCID

Vu Quang Trinh https://orcid.org/0000-0003-2606-2958

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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APPENDIX A

Variable definitions	
Capital structure choice	
liabilities over assets	Total liabilities divided by total assets
Corporate tax avoidance	
GAAP ETR	Annual GAAP effective tax rate, measured by the ratio of tax expenses and pretax income. Higher value of GAAP ETR implies less aggressive CTA behaviour.
LCETR3	The ratio of a firm's cash payment for taxes over a 3-year period and the sum of its total pretax income over the same period. Higher value of LCETR3 implies less aggressive CTA behaviour.
Board busyness measures	
#directorship	The average directorship that IDs held
%busyIDs (cut-off 3)	The percentage of busy IDs (holding at least 3 directorships)
%busyIDs (cut-off 4)	The percentage of busy IDs (holding at least 4 directorships)
%busyIDs (cut-off 5)	The percentage of busy IDs (holding at least 5 directorships)
Board busyness dummy (cut-off 3)	Dummy, taking value of 1 if the board is classified as busy (≥ 50% IDs have at least 3 directorships_ and 0 otherwise.
Board busyness dummy (cut-off 4)	Dummy, taking value of 1 if the board is classified as busy (≥ 50% IDs have at least 4 directorships_ and 0 otherwise.
Control variables	
Ln(board size)	Natural logarithm of total number of directors serving on the board
%IDs	The percentage of IDs on board
% Shares held by board of directors	Percentage of shares held by board of directors
% Shares held by executives	Percentage of shares held by executives
% State ownership	Percentage of state ownership
% Foreign ownership	Percentage of shares held by foreign investors
Ln(total assets)	Natural logarithm of the book value of total assets
Ln(firm age)	Natural logarithm of years since foundation year
PPE/assets	Property, plant and equipment scaled by total assets.
Cash/assets	Cash scaled by total assets
Intangible/assets	Intangible assets scaled by total assets
R&D/assets	Research and development expenses scaled by total assets
Return-on-equity ratio	Return on assets
Dividend distribution ratio	Dividend distribution ratio

Note: This table presents the definitions and measurements of all dependent and independent variables that are employed in this research.