

THE IMPACTS OF CORPORATE GOVERNANCE MECHANISMS AND OWNERSHIP STRUCTURE ON CAPITAL STRUCTURE OF CHINESE DUAL-LISTED COMPANIES

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ABSTRACT

This research aims to assess how the mechanisms of corporate governance and ownership structure affect the capital structures of Chinese dual-listed companies that list their shares in the China A-share market and the Hong Kong market simultaneously from 2003 to 2019. A binary variable of state control firm attribute is introduced to proxy the political connection to the Chinese government. Both the independent director ratio and CEO duality are negatively and significantly associated with the long-term debt ratio. The board size negatively and significantly relates to the short-term debt ratio. Evidence of board members' avoidance of investors' pressure to use more debt and escape from debt lenders' monitoring is observed in this research. Both foreign ownership and state ownership are significantly and negatively associate with the short-term debt ratio, but significantly and positively associate with the long-term debt ratio. Thus, both foreign investors and the Chinese government prefer the companies to achieve rapid growth through the use of more long-term debts. The binary variable of state control firm attribute has a significant positive association with the short-term debt ratio alone. However, evidence of declining use of long-term debt financing due to political connections, such as the issuance of equity, is not observed.

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1. INTRODUCTION

Prior papers related to the impacts of corporate governance mechanisms and ownership structures on companies' capital structures in the literature are plentiful (Danso et al., 2021; Thakolwiroj & Sithipolvanichgul, 2021; Borges Júnior, 2022; Bhabra et al., 2008; Wen et al., 2002; Boateng et al., 2017), but their research results are mixed. This is because companies from different markets may

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have different firm-level characteristics and company cultures. In addition, the market contexts, the standard of corporate governance practice, and the stringency of listing rules and laws in different markets may vary remarkably. All these are determinant factors that affect the capital structure decisions of companies. However, none of the prior papers covered the Chinese dual-listed companies. In this study, Chinese dual-listed companies are Chinese companies (Ayyagari & Doidge, 2010; Coffee Jr., 2002; Ferris et al., 2009; Karolyi, 2006; Shi et al., 2018) that have core businesses in China and list their shares in the China A-share market, a segmented emerging market, and the Hong Kong market, a world-class, well-developed market, simultaneously. Due to the variations in companies' specificities and market contexts, whether prior studies' findings and assertions are still applicable to Chinese dual-listed companies is uncertain. Therefore, how the corporate governance mechanisms and ownership structure influence the Chinese dual-listed companies' capital structures is still unknown, which leads to the two research questions that this study will address.

Furthermore, prior papers that attempt to figure out how government intervention or political connections affect the companies' capital structure decisions in literature use state ownership to proxy the strength of government intervention. However, their studies' results are also mixed (Vijayakumaran & Vijayakumaran, 2019; Boateng et al., 2017; Bhabra et al., 2008; Zou & Xiao, 2006; Ahmed & McMillan, 2021). An intuitive question arises as to whether state ownership can really proxy government intervention, especially in the case of Chinese companies. To find the answer, a binary variable of state control firm attribute is introduced in this study. It is equal to 1 if the company's controlling shareholder is the Chinese government, or 0 otherwise. We argue that state ownership and state control firm attribute are two distinct concepts and speculate that their impacts on the capital structures of Chinese dual-listed companies are different too. Thus, verifying our argument becomes the third research question of this study.

In this section, we define the Chinese dual-listed companies, and the state control firm attribute, and articulate the three research questions that we are going to address in this study. The three research questions are (i). How do corporate governance mechanisms influence the capital structure? (ii). How does the ownership structure influence the capital structure? (iii). Are state ownership and state control firm attribute two distinct concepts? The remainder of this paper is organized in the following order, Section 2 explains the background of this study. Sections 3 and 4 comprise literature reviews and hypotheses development. The research design is presented in Section 5. Section 6 contains empirical results and a discussion. Section 7, the last section, is a summary and conclusion.

2. BACKGROUND

The underpinning theory that governs the discussion of companies' capital structure is the agency theory (Garanina & Kaikova, 2016; Gul et al., 2012; Jensen & Meckling, 1976; Jensen, 1986). Agency costs exist whenever the interests of managers or controlling shareholders do not align with the investors' interests (Garanina & Kaikova, 2016; Gul et al., 2012; Jensen & Meckling, 1976). For instance, investors tend to pressure the board to use more debt to finance new investments to boost business growth, while board members and managers may tend to use less debt financing to escape pressure from investors, and monitoring from debt lenders (Berger et al., 1997; Wen et al., 2002). However, due to the specificities of companies, and the variation of market

contexts, there is no consensus on how corporate governance mechanisms and ownership structures affect companies' capital structures in the literature. More research has to be done to explore these issues for a specific class of companies in specific host markets.

Thus, untangling the curiosity of how the mechanisms of corporate governance and ownership structure characterize the capital structures of non-financial Chinese dual-listed companies forms the motivation of this research. As explained, to examine how the political connection influences the capital structure, a binary variable of state control firm attribute is introduced in this study. In a state-controlled Chinese company, the Chinese government appoints political officers and professional executives to form the board and run the company on behalf of the government. The boards of state-controlled Chinese companies are mandated to listen to the political officers (representatives of the Communist Party of China) before making strategic decisions. Thus, the state control firm attribute represents both ownership rights and manipulation rights (Lin et al., 2020; Ma & He, 2018), and is more appropriate to proxy the political connection over the state ownership. For instance, the state-owned shares in a Chinese private company manipulated by the company's founders, not the China government or its representatives, may not represent manipulation rights, hence the political connection to the Chinese government. Besides, state-controlled Chinese companies must have a high concentration of state ownership, but a Chinese company with a high concentration of state ownership is not necessarily a state-controlled company. Thus, state ownership and state control firm attribute are two distinct concepts. Their impacts on the capital structures of Chinese dual-listed companies would be different. Prior research papers that assess the impacts of state ownership on the capital structure may fail to fully capture the political influence of the Chinese government. Especially in the case of Chinese dual-listed companies, the political influence on capital structure decisions is still unknown.

The capital structure mirrors a company's financial strength to grow its business in the future. A miscalculation of how the corporate governance mechanisms and ownership structure affect the capital structure of a company may incur tremendous losses. Thus, understanding a company's capital structure is vital to helping investors evaluate their investment returns. Through this study, we want to assess how the corporate governance mechanisms and ownership structure influence the capital structures of Chinese dual-listed companies and extend the extant literature further by taking into account state control firm attribute when analyzing the government's intervention in companies' capital structure decisions.

To the best of our knowledge, this is the first dedicated research project to investigate the capital structures of Chinese dual-listed companies. Our research results complement the extant research papers related to the field of capital structure in the literature and provide valuable information to investors to evaluate Chinese dual-listed companies before making investment decisions.

3. LITERATURE REVIEW

3.1. *Theoretical Review*

The high ownership concentration and the poor quality of corporate governance (Boateng et al., 2017; Sabbaghi, 2016; Vu et al., 2018) are well-known common symptoms of companies that come from emerging markets and are the main sources of agency costs (Jensen & Meckling, 1976; Gul

et al., 2012; Alhossini et al., 2021). The agency cost is an internal cost due to the misalignment of interests between companies' managerial team and shareholders, affects the companies' capital structure decisions, and in the end may deteriorate the companies' value in the worst case (Garanina & Kaikova, 2016; Al-zaidyeen & Al-rawash, 2015; Chang & Wong, 2004; Lu et al., 2022; Elmagrhi et al., 2018; Nguyen et al., 2020). The theoretical framework governing the discussion of capital structure and its relationships to corporate governance mechanisms and ownership structure in literature is agency theory (Jensen & Meckling, 1976; Jensen, 1986). Jensen (1986) asserts that the use of debt financing favors the monitoring role of debt lenders and mitigates the expropriation of minority shareholders by entrenched managers, the CEO, and controlling shareholders (Ben-Nasr et al., 2015; Elkelish, 2018; Ghosh et al., 2011; Claessens et al., 2002; Lins, 2003; Sabbaghi, 2016). Thus, the managerial team tends to use less debt financing. Inversely, the proper use of financial leveraging can cluster the necessary cash to finance new investments and enable rapid business growth. Thus, investors tend to pressure the managerial team to increase the companies' leverage ratio. This kind of conflict between the managerial team and investors not only characterizes the capital structure but also increases agency costs and deteriorates the firm's value in the end (Estwick, 2016; Ferris et al., 2009; Ghosh et al., 2011; Claessens et al., 2002; Rani et al., 2013). Besides, the low risk of bankruptcy and financial guarantee backed by the political connection to the state that may facilitate the companies to use more debt financing may form the general claim of people (Ahmed & McMillan, 2021). On the other hand, it may be easier to raise equity and use less long-term debt in companies with a strong political connection to the government (Boateng et al., 2017; Vijayakumaran & Vijayakumaran, 2019). Thus, the political influences on capital structure decisions are mixed in the literature but should not be undermined.

3.2. Corporate Governance and Capital Structure

Wen et al., (2002) investigate how board characteristics influence the capital structure of Chinese companies during the period from 1996 to 1998. Wen et al., (2002) assert that the managerial team prefers a lower level of financial leverage to avoid monitoring and pressure from the board. Thus, the outside director ratio and the length of CEO tenure negatively relate to the leverage ratio. However, the insignificant influence of board size on leverage ratio is reported by Wen et al., (2002). On the other hand, Vijayakumaran and Vijayakumaran (2019) find insignificant influences of board size and independent director ratio on leverage ratio in their study related to the impacts of corporate governance and ownership structure on capital structure decisions of Chinese companies listed in the China A-share market from 2003 to 2010. Thakolwiroj and Sithipolvanichgul (2021) examine the impacts of board features on the capital structures of listed companies on the Thailand Stock Exchange during the period from 2015 to 2017. Thakolwiroj and Sithipolvanichgul (2021) report that the association between the outside director ratio and the total debt ratio is negative and significant. However, insignificant associations of board size and CEO duality with the total debt ratio are reported by Thakolwiroj and Sithipolvanichgul (2021). Berger et al. (1997) studied the entrenchment effect of managers on the capital structures of listed industrial companies in the US market from 1984 to 1991 and asserted that entrenched CEOs tend to avoid debt financing to escape the monitoring of debt lenders. Berger et al. (1997) discovered that the use of debt financing increases after executing the de-entrenchment measures. Amin et al. (2022), who analyze the capital structures of non-financial companies listed in the Pakistan Stock Exchange from 2008 to 2019, provide evidence to show that both board size and board independence are positively associated with the leverage ratio. While CEO duality is found to have a significant negative association with the leverage ratio. Amin et al. (2022) document that CEO duality represents poor

corporate governance that weakens debt lenders' confidence and deters the lenders from lending money to the companies. Furthermore, Júnior (2022) shows a positive association between CEO duality and debt ratio in his research related to the capital structures of companies from Latin America during the period from 2009 to 2018.

Although prior studies to find out how corporate governance mechanisms affect the companies' capital structure decisions are plentiful, their results are mixed and do not cover the Chinese dual-listed companies. This is a missing puzzle in the literature that we want to address.

3.3. Ownership Structure and Capital Structure

Apart from board characteristics, the ownership structure is another determinant factor that affects the capital structures of companies. Vijayakumaran and Vijayakumaran (2019) point out that both government ownership and foreign ownership have significant negative associations with the leverage ratio of Chinese companies and assert that state-owned Chinese companies face less restriction in issuing equities and decline the use of debt financing. Consistent with Vijayakumaran and Vijayakumaran (2019), Boateng et al. (2017) also find a negative relationship between state ownership and debt ratio in Chinese companies. However, Bhabra et al. (2008) found opposite results in their study related to the capital structures of Chinese companies from 1992 to 2001. Bhabra et al. (2008) find that not only state ownership, but also China domestic private ownership and foreign ownership, positively relate to the long-term debt ratio. Besides, no important influence of state ownership and foreign ownership on the debt ratio is reported by Zou and Xiao (2006) who examine the financing behavior of Chinese companies from 1993 to 2000. In addition, Ahmed and McMillan (2021) examine the effect of political connection on the capital structures of banks in Gulf Corporate Countries (GCC) after the financial crisis in 2008 and show that political connection negatively influences the debt ratio. Ahmed and McMillan's (2021) finding is opposite to the general belief that politically connected banks more easily receive debt financing due to backing from the government and are less likely to go bankrupt. Instead, politically connected banks are found to be more aggressive in deleveraging than non-politically connected banks in the GCC.

Prior studies' results in the literature are mixed. More work has to be done to understand the relationships between the ownership structure and capital structure decisions of different companies listed in different host markets, especially the Chinese dual-listed companies. Further, we argue that state control firm attribute and state ownership are two distinct concepts. The latter may fail to fully proxy the manipulation rights, hence the government's intervention in companies' capital structure decisions. We will take a further step to verify our argument and expect our research results to fill three literature gaps related to Chinese dual-listed companies' capital structures, such as the impacts of corporate governance mechanisms, the influence of ownership structure, and the legitimization of distinctive concepts between state control firm attribute and state ownership.

4. HYPOTHESES DEVELOPMENT

As asserted by Berger et al. (1997) and Wen et al. (2002), the use of debt financing will incur monitoring from debt lenders. In addition, investors tend to put pressure on the board members to

use more debt financing to grow the business more rapidly (Bhabra et al., 2008). On the other hand, as explained by the agency theory (Jensen & Meckling, 1976; Jensen, 1986; Karolyi, 2006; Danso et al., 2021), board members may prefer to use less debt financing to avoid the pressure from investors and escape the monitoring from debt lenders (Berger et al., 1997; Wen et al., 2002). For instance, Wen et al. (2002), and Thakolwiroj and Sithipolvanichgul (2021) report a negative relationship between board independence and leverage ratio, while Berger et al. (1997) and Amin et al. (2022) uncover the negative relationship between CEO duality and debt ratio. However, Wen et al. (2002), Vijayakumaran and Vijayakumaran (2019), and Thakolwiroj and Sithipolvanichgul (2021) find an insignificant influence of board size on debt ratio.

Following the logic of agency theory and prior studies, we predict significant impacts of board independence, board size, and CEO duality on Chinese dual-listed companies' capital structures. To verify our predictions, the following hypothesis *H1* is developed. A corporate governance mechanism is regarded as having a significant influence on the capital structure if it has a significant association with the short-term debt ratio or the long-term debt ratio.

H1: The independent director ratio, board size, and CEO duality significantly influence the capital structure of Chinese dual-listed companies.

Further, the impacts of ownership structure on capital structure do not have consensus in the literature. Some researchers indicate that both foreign investors and the state deter the use of debt financing (Boateng et al., 2017; Vijayakumaran & Vijayakumaran, 2019). For instance, Vijayakumaran and Vijayakumaran (2019) and Boateng et al. (2017) point out that state-owned Chinese companies are easier to receive policy support from or face less friction when issuing equities that substitute debt financing. As a result, the leverage ratio is negatively related to both foreign ownership and state ownership in Chinese state-owned companies. On the other hand, some researchers document the opposite views. For instance, Bhabra et al. (2008) show that foreign ownership, state ownership, and domestic private ownership positively relate to the debt ratio in Chinese companies, as the use of debt financing can grow the business more rapidly, while some researchers claim that no significant influence has been discovered between the ownership structure and capital structure of Chinese companies (Zou & Xiao, 2006). Thus, prior studies' results related to the impacts of the ownership structure on companies' financing decisions are mixed.

Although how the ownership structure influences the capital structure of Chinese dual-listed companies is still uncertain, we intuitively predict that the impacts of foreign ownership and state ownership on capital structure are significant if the assertions of Bhabra et al. (2008), Boateng et al. (2017) and Vijayakumaran and Vijayakumaran (2019) are followed. To test our predictions, the following hypothesis, *H2*, is developed. An ownership type is considered to have a significant influence on the capital structure if it has a significant association with the short-term debt ratio or the long-term debt ratio.

H2: Foreign ownership and state ownership significantly influence the capital structure of Chinese dual-listed companies.

In this research, a state control firm attribute is introduced to proxy the political connection to the Chinese government. We argue that state ownership and state control firm attribute are two distinct

concepts. The state control firm attribute represents both ownership rights and manipulation rights (Lin et al., 2020; Ma & He, 2018), and embraces the dual roles of investor and government policy executor. However, state ownership may not represent manipulation rights. For instance, the state ownership of a Chinese private company manipulated by its founders is an outstanding example. Thus, the use of the state control firm attribute may be more appropriate to proxy the political connection to the Chinese government. Besides, we speculate that the political connection may allow the state-controlled Chinese companies to receive policy support from the Chinese government, such as making it easier to raise equities from the market. The use of equity financing may deter reliance on long-term debts. To a certain extent, our speculation is parallel to the assertion of Vijayakumaran and Vijayakumaran (2019) who indicate that state-owned Chinese companies face fewer restrictions to issue equities and decline the use of long-term debt financing. However, most of the prior papers (Boateng et al., 2017; Bhabra et al., 2008; Vijayakumaran & Vijayakumaran, 2019; Zou & Xiao, 2006) define state-owned companies in terms of state ownership and the percentage of shares owned by the government. Whether this definition is still applicable to Chinese companies, especially the Chinese dual-listed companies, is questionable.

To test our argument that state control firm attribute and state ownership are two distinct concepts, we need to figure out how the state control firm attribute influences the short-term debt ratio and long-term debt ratio compared to that of state ownership. The following hypothesis, *H3*, is expected to achieve this. Similarly, the state control firm attribute is regarded as having a significant influence on capital structure, if it significantly associates with either the short-term debt ratio or the long-term debt ratio.

H3: State control firm attribute significantly influences the capital structure of Chinese dual-listed companies.

5. RESEARCH DESIGN

Since the short-term debt ratio and long-term debt ratio are two widely used variables to proxy the capital structures of companies in the literature (Boateng et al., 2017; Feng et al., 2020), they are recruited as the dependent variables in this research. In calculating the short-term debt ratio and long-term debt ratio, the book values of current liabilities and long-term liabilities are used instead of debts. This is because liabilities include all kinds of financial obligations that the company owes to other parties. In contrast, debts only cover the obligations associated with loans. Thus, liability is a wider term to proxy a company's financial obligation. Equations Eq. 1 and Eq. 2 are definitions of the short-term debt ratio, DR_{CUR} , and long-term debt ratio, DR_{LON} , respectively.

$$DR_{CUR} = \text{Short Term Debt Ratio} = \frac{\text{Current Liabilities}}{\text{Total Assets}} \quad \text{Eq. 1}$$

$$DR_{LON} = \text{Long Term Debt Ratio} = \frac{\text{Long Term Liabilities}}{\text{Total Assets}} \quad \text{Eq. 2}$$

The independent director ratio, or *ID*, is one of the most widely used corporate governance

mechanisms to proxy the board's independence in literature and is evidenced to have a significant influence on the determination of companies' capital structures (Amin et al., 2022; Thakolwiroj & Sithipolvanichgul, 2021; Wen et al., 2002). The papers of Wen et al. (2002) and Thakolwiroj and Sithipolvanichgul (2021) indicate an inverse relationship between board independence and debt financing. Amin et al. (2022) assert a positive relationship between board independence and leverage ratio. However, an insignificant association between board independence and debt financing is observed in the study of Vijayakumaran and Vijayakumaran (2019). To find out how board independence relates to the capital structures of Chinese dual-listed companies, it makes sense to recruit the independent director ratio, *ID*, as one of the independent variables in this research. The independent director ratio is calculated as the number of independent directors divided by the total number of board members.

The board size, *BS*, is another widely used corporate governance mechanism in literature (Wen et al., 2002; Garanina & Kaikova, 2016; Thakolwiroj & Sithipolvanichgul, 2021). However, its impact on capital structure is controversial. For instance, Amin et al. (2022) show evidence of a significant effect of board size on capital structure. On the other hand, no significant impact of board size on capital structure is reported by Wen et al. (2002) and Thakolwiroj and Sithipolvanichgul (2021). We follow Amin et al. (2022), Wen et al. (2002), and Thakolwiroj and Sithipolvanichgul, (2021) to recruit the board size, *BS*, as an independent variable to examine its effects on capital structure. The board size, *BS*, is equal to the total number of board members.

The CEO duality, *CD*, is a binary variable and is defaulted to 1 if the separation between CEO and chairman cannot be verified, or 0 otherwise. The impacts of CEO duality on companies' capital structures have no consensus in the literature. For instance, Berger et al. (1997) and Amin et al. (2022) report that CEOs fail to act diligently, and CEO duality is found to be negatively related to debt financing. On the other hand, Thakolwiroj and Sithipolvanichgul (2021) find an insignificant relationship between CEO duality and capital structure in their study. However, how CEO duality affects the Chinese dual-listed companies' capital structures is still unknown, as prior studies do not cover the Chinese dual-listed companies. The importance of CEO duality, *CD*, in determining the capital structure of the company should not be undermined (Amin et al., 2022; Júnior, 2022; Thakolwiroj and Sithipolvanichgul, 2021). Thus, it is reasonable to include CEO duality, *CD*, as an independent variable in this research.

As shares of Chinese dual-listed companies are traded in the Hong Kong market, the presence of foreign investors in the Hong Kong market may affect capital structure decisions. This is because investors would prefer companies to use debt financing to boost their business more rapidly to maximize their investment returns and minimize the agency cost (Jensen, 1986; Jensen & Meckling, 1976). However, prior research results related to the influence of foreign investors' ownership on capital structure are mixed (Bhabra et al., 2008; Vijayakumaran & Vijayakumaran, 2019; Zou & Xiao, 2006). Thus, it is worth including foreign ownership in this research to test the influence of foreign investors. Foreign ownership, *FO*, is the shares owned by foreign investors in percentage. Without the loss of logical reasoning, investors would prefer to maximize their investment returns. A higher foreign ownership results in a stronger pressure to grow future business. We foresee positive relationship between foreign ownership and long-term debt ratio.

Prior research papers used state ownership, *SO*, to proxy government intervention in the capital structure decisions of companies. However, we argue that the state ownership of Chinese

companies may not represent companies' manipulation rights and may fail to proxy the political connection to the Chinese government. Thus, we speculate that the influence of state ownership on capital structure is similar to that of foreign ownership, as both foreign investors and the Chinese government can act as pure investors such that their interests are aligned. However, prior research results are also mixed (Bhabra et al., 2008; Boateng et al., 2017; Feng et al., 2020; Vijayakumaran & Vijayakumaran, 2019; Zou & Xiao, 2006). We follow prior researchers to use state ownership, *SO*, as an independent variable to test the effect of Chinese government intervention on capital structure. In this research, state ownership is the total sum of shares in percentage owned by China's central government and China's provincial governments (from now on, the Chinese central government and the Chinese provincial governments are collectively called the Chinese government).

However, as explained in the Introduction section, the use of the state control firm attribute, *SC*, may be more appropriate to proxy the political connection to the Chinese government. The state control firm attribute, *SC*, is a binary variable and is equal to 1 if the company's controlling shareholder is the Chinese government, or 0 otherwise. The state control firm attribute, *SC*, represents ownership rights and manipulation rights (Lin et al., 2020). We speculate that the influence of political connection, proxied by state control firm attribute, on capital structure is remarkably different from that of state ownership. To legitimize our argument of distinctive concepts between state control firm attribute and state ownership, the binary variable of state control firm attribute, *SC*, is introduced in the regression model to figure out how state ownership and state control firm attribute behave differently in characterizing the company's capital structure. Last, the firm size, *FS*, return on assets, *ROA*, Tobin's q, *TQ*, and stock return volatility, *VOL*, are the control variables in the regression models. The firm size, *FS*, is calculated as the natural logarithm of the total assets of the company. The stock return volatility, *VOL*, is the standard deviation of daily stock return rates. Eq. 3 is the regression model used to assess how the mechanisms of corporate governance and ownership structure affect the capital structures of non-financial Chinese dual-listed companies in this research.

$$DR = c + \beta_{ID} \cdot ID + \beta_{BS} \cdot BS + \beta_{CD} \cdot CD + \beta_{FO} \cdot FO + \beta_{SO} \cdot SO + \beta_{SC} \cdot SC + \beta_{FS} \cdot FS + \beta_{ROA} \cdot ROA + \beta_{TQ} \cdot TQ + \beta_{VOL} \cdot VOL + \varepsilon$$

where *c* is a constant, ε is the error term, and *DR* is the debt ratio, such that:

$$DR = \begin{cases} DR_{CUR}, Short Term Debt Ratio, \\ or \\ DR_{LON}, Long Term Debt Ratio. \end{cases} \quad \text{Eq. 3}$$

In this study, the threshold value to justify the significance of an association between the dependent variable and an independent variable is at 5% significance level. Table 1 is the description of all variables in Eq. 3. Variables are categorized into four categories: Dependent Variable, Corporate Governance, Ownership, and Control Variable.

Table 1: Descriptions of variables

Variable	Description
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Dependent Variable:

DR_{CUR}	Short-term debt ratio, the ratio of current liabilities to total assets.
DR_{LON}	Long-term debt ratio, the ratio of long-term liabilities to total assets.

Corporate Governance:

ID	Independent director ratio, the ratio of number of independent director to number of board member.
BS	Board size, the number of board member.
CD	CEO duality, a binary variable equal to 1 if CEO and chairman are the same person, or 0 otherwise.

Ownership:

FO	Foreign ownership in percentage.
SO	State ownership in percentage.
SC	State control firm attribute, a binary variable equal to 1 if the company is controlled by the Chinese government, or 0 otherwise.

Control Variable:

FS	Firm size, the natural logarithm of total assets of the company.
ROA	Return on assets, a proxy of firm performance.
TQ	Tobin's Q of the company, a proxy of firm performance.
VOL	Stock return volatility, the standard deviation of stock return ratio, a proxy of firm risk.

6. EMPIRICAL RESULTS AND DISCUSSION

6.1. Data Sampling

There were 114 Chinese companies dually listed in the China A-share market and the Hong Kong market from 2003 to 2019. Of these 25 are financial companies and 14 companies have incomplete data. Therefore, only 75(114 – 25 – 14) Chinese dual-listed companies are selected for this study. In this study, the Hong Kong market means the Hong Kong mainboard, not the SME market (Small and Medium Enterprise Market). Those Chinese companies that solely list in the China A-share market or the Hong Kong market are not selected for this study. All raw data are manually collected from the official websites and annual reports of the selected companies available from the Shanghai Stock Exchange, www.sse.com.cn, and the Shenzhen Stock Exchange, www.szse.com.cn. China A-share stock price information is obtainable from Chinese financial intermediaries' online trading platforms and is used to calculate the stock return volatility, VOL . The total number of firm-year observations is 758, of which 632 observations have the state control firm attribute, SC , equal to 1, and 116 observations have the CEO duality, CD , equal to 1. Only the top ten largest shareholders and their holding share quantities are disclosed in Chinese companies' annual audited reports and are counted in the ownership calculation. Furthermore, the CEO duality is equal to 1, or 0 only if

the CEO and chairman of the company are verified to be two different persons.

6.2. Descriptive Statistics

The data shown in Table 2 is the descriptive statistics of all non-binary variables. DR_{CUR} has the mean, median, and standard deviation of 0.4015, 0.3743, and 0.2422. The skewness of DR_{CUR} is 6.0413, outside the range of $[-1, 1]$. The distribution of DR_{CUR} is right-skewed, and moderately normal. The mean, median, and standard deviation of DR_{LON} are 0.1638, 0.3743, and 0.1306. However, DR_{LON} 's skewness is 0.7862, inside the range of $[-1, 1]$, and its distribution is highly normal. The ID 's mean, median, and standard deviation are 0.3914, 0.3636, and 0.0694. This implies that, on average, over one-third of board members are independent directors. The skewness of ID is 1.4285, outside the range of $[-1, 1]$. The distribution of ID is right-skewed and moderately normal. The mean, median, and standard deviation of BS are 9.7216, 9.0000, and 2.1754. This means, most of the boards have 9 to 10 members. However, the distribution of BS is highly normal, as BS 's skewness is only 0.8715, inside the range of $[-1, 1]$. FO has a mean, median, and standard deviation of 26.1692, 26.3500, and 10.6506. The FO 's skewness is 0.1395, inside the range of $[-1, 1]$. Thus, the distribution of FO is highly normal, while, the mean, median, and standard deviation of SO are 40.3950, 45.2962, and 20.1053. The high mean value of SO means that most of the selected companies have a high degree of state ownership concentration. The skewness of SO is -0.6469, inside the range of $[-1, 1]$. The distribution of SO is highly normal. For the control variables FS and VOL , their respective skewness values are -0.3019 and 0.7665 and are inside the range of $[-1, 1]$. Thus, the distributions of FS and VOL are highly normal. However, the skewness of control variables ROA and TQ are -7.8691 and 7.7641, outside the range of $[-1, 1]$. Thus, the distributions of ROA and TQ are moderately normal.

6.3. Correlation Matrix

Table 3 shows the correlation coefficients of all non-binary variables. The correlation coefficient between DR_{CUR} and DR_{LON} is -0.3472, inside the range of $[-0.5, 0.5]$. Thus, DR_{CUR} is weakly and negatively correlated with DR_{LON} . The increase of DR_{CUR} will decrease the DR_{LON} . In addition, the correlation between ID and BS is -0.4482, inside the range of $[-0.5, 0.5]$. ID is also weakly correlated with BS . The larger the board size, the lower the independent director ratio. Besides, the correlation coefficient between FO and SO is -0.2524, inside the range of $[-0.5, 0.5]$, and is weak. Thus, those selected companies with a higher portion of shares owned by the Chinese government will have fewer shares owned by foreign investors. The rest of the correlation coefficients are inside the range of $[-0.5, 0.5]$, and the respective correlation is weak. The multicollinearity problem among all the non-binary variables is insignificant.

Table 2: Descriptive statistics of non-binary variables

	DR_{CU} R	DR_{LO} N	ID	BS	FO	SO	FS	ROA	TQ	VOL
Mean	0.401	0.163	0.391	9.7216	26.169	40.395	24.289	0.031	1.3262	2.482
Median	0.374	0.130	0.363	9.0000	26.350	45.296	24.506	0.032	1.1272	2.294
Maximum	4.339	0.548	0.714	18.000	58.120	80.090	28.179	0.282	12.423	5.706
	5	6	3	0	0	0	1	3	1	1

Minimum	0.061 3	0.000 0	0.285 7	4.0000	0.0000	0.0000	19.539 9	- 1.300 2	0.7110	0.841 9
Std. Dev.	0.242 2	0.130 6	0.069 4	2.1754	10.650 6	20.105 3	1.6410	0.078 5	0.7715	0.869 8
Skewness	6.041 3	0.786 2	1.428 5	0.8715	0.1395	- 0.6469	- 0.3019	- 7.869 1	7.7641	0.766 5

Table 3: Correlation matrix

	<i>DR_{CUR}</i>	<i>DR_{LON}</i>	<i>ID</i>	<i>BS</i>	<i>FO</i>	<i>SO</i>	<i>FS</i>	<i>ROA</i>	<i>TQ</i>	<i>VOL</i>
<i>DR_{CUR}</i>	1.000									
<i>R</i>	0									
<i>DR_{LO}</i>	-	1.000								
<i>N</i>	0.347 2	0								
<i>ID</i>	0.077 8	0.122 3	1.000 0							
<i>BS</i>	-	0.103 2	-	1.000 0						
<i>FO</i>	0.079 4	0.080 9	0.164 3	0.114 0	1.000 0					
<i>SO</i>	-	0.114 9	0.103 4	-	-	1.000 0				
<i>FS</i>	0.044 9	0.192 5	0.289 0	0.086 7	0.346 6	0.341 6	1.000 0			
<i>ROA</i>	-	0.383 9	0.100 1	0.036 5	0.032 1	0.037 9	0.087 8	0.180 8	1.000 0	
<i>TQ</i>	0.016 4	-	0.058 4	0.039 5	0.020 6	0.159 6	-	-	-	1.000 0
<i>VOL</i>	0.038 0	-	0.120 4	0.083 0	0.027 0	0.130 0	-	-	-	0.207 1
							0.328 0	0.085 8	0.207 1	1.000 0

6.4. Regression Results

The data shown in Table 4 are the random effects regression results of model Eq. 4. The data in Table 4. is divided into two columns. The left columns are the regression results of the short-term debt ratio, *DR_{CUR}*, while the right column is the regression results of the long-term debt ratio, *DR_{LON}*. The p-values of the Hausman test in regressions of *DR_{CUR}* and *DR_{LON}* are 0.8761 and 0.8834 (shown in Table 4.), higher than 0.05. The use of random effects models in regressions of *DR_{CUR}* and *DR_{LON}* is more appropriate to estimate the overall effect of any independent variable across the sampled companies. In addition, White’s Robust LS regression technique is employed

to address the heteroscedasticity problem. The threshold value to determine the significance of an association between a dependent variable and an independent variable is 5% significance level.

As depicted in Table 4, the independent director ratio, ID , has a significant negative association with the long-term debt ratio, DR_{LON} , at 1% significance level, but has an insignificant positive association with the short-term debt ratio, DR_{CUR} . The regression results of board size, BS , are opposite to those of the independent director ratio. The association between board size, BS , and the short-term debt ratio, DR_{CUR} , is negative and statistically significant at the 1% significance level. However, the board size, BS , is insignificantly and positively associated with the long-term debt ratio, DR_{LON} . Besides, the CEO duality, CD , has regression results similar to those of the independent director ratio. The CEO duality, CD , has a significant negative association with the long-term debt ratio, DR_{LON} at the 1% significance level, but has an insignificant positive association with the short-term debt ratio, DR_{CUR} . All three corporate governance mechanisms have significant negative associations with either the short-term debt ratio or the long-term debt ratio. Their regression results accept hypothesis $H1$.

For the ownership variables, both foreign ownership, FO , and state ownership, SO , have similar regression results. Both foreign ownership, FO , and state ownership, SO , have significant negative associations with the short-term debt ratio, DR_{CUR} , at respective 5% and 1% significance levels, and both have significant positive associations with the long-term debt ratio, DR_{LON} , at 1% significance level. Thus, the regression results accept hypothesis $H2$. Both foreign ownership, FO , and state ownership, SO , significantly influence the capital structure of Chinese dual-listed companies. However, the regression results of the state control firm attribute, SC , are different from those of the state ownership, SO . The state control firm attribute, SC , is revealed to have a positive and significant association with the short-term debt ratio, DR_{CUR} , at 5% significance level, but an insignificant and negative association with the long-term debt ratio, DR_{LON} . The state control firm attribute influences the capital structure of Chinese dual-listed companies. Thus, hypothesis $H3$ is accepted.

Among the control variables, only the firm size, FS , has significant positive associations with the short-term debt ratio, DR_{CUR} , and the long-term debt ratio, DR_{LON} , at 5% and 1% significance levels respectively. The ROA negatively associates with both the short-term debt ratio, DR_{CUR} , and the long-term debt ratio, DR_{LON} , at 1% significance level. This shows that firms with better performance have more retained earnings and prefer to use less debt financing. The regression results of ROA are consistent with the pecking order theory (Elmagrhi et al., 2018; Danso et al., 2021; Qian et al., 2009) that says that companies prioritize their sources of financing from internal retained earnings to external sources, such as debts or equities. Both Tobin's q , TQ , and stock return volatility, VOL , are found to have insignificant associations with short-term debt ratio and long-term debt ratio.

Based on the regression results, we discovered that independent directors and the CEO duality prefer to use less long-term debt financing, while a larger board inclines to use fewer short-term debts. In contrast, both foreign investors and the Chinese government (proxied by ownership) prefer to use more long-term debt but deter the use of short-term debts. However, state-controlled Chinese dual-listed companies favor the use of short-term debt only. Table 5 is a summary of all independent variables' significant associations with both the short-term debt ratio, DR_{CUR} , and the long-term debt ratio, DR_{LON} .

Table 4: Random effects model regression results

Variable	<i>DR_{CUR}</i>		<i>DR_{LON}</i>	
	Coefficient	p-value	Coefficient	p-value
<i>c</i>	0.1783 (0.6975)	0.4955	-0.3582*** (-4.6444)	0.0003
<i>ID</i>	0.1246 (1.4331)	0.1711	-0.2906*** (-5.9769)	0.0000
<i>BS</i>	-0.0093*** (-3.9795)	0.0011	0.0037 (1.6339)	0.1218
<i>CD</i>	0.0442 (1.3696)	0.1897	-0.0281*** (-4.1421)	0.0008
<i>FO</i>	-0.0012** (-2.3991)	0.0290	0.0024*** (6.3931)	0.0000
<i>SO</i>	-0.0023*** (-6.7084)	0.0000	0.0007*** (4.6094)	0.0003
<i>SC</i>	0.0660** (2.3572)	0.0315	-0.0142 (-1.7032)	0.1079
<i>FS</i>	0.0156** (2.2856)	0.0363	0.0230*** (7.0154)	0.0000
<i>ROA</i>	-1.3321*** (-4.6852)	0.0002	-0.2617*** (-4.4896)	0.0004
<i>TQ</i>	-0.0361* (-1.9928)	0.0636	0.0018 (0.3387)	0.7393
<i>VOL</i>	0.0153 (1.5339)	0.1446	-0.0103* (-2.0897)	0.0530
Hausman Test:		0.8761		0.8834
R-squared:	0.1998		0.1367	

Note: *** significance at 1% level, ** significance at 5% level, * significance at 10% level. The numbers shown in parentheses are the t-statistics of the estimated coefficients.

Table 5: Summary of significant associations

Variable	Short-term (<i>DR_{CUR}</i>)	Debt Ratio	Long-term (<i>DR_{LON}</i>)	Debt Ratio
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Corporate Governance :Independent Director Ratio
(*ID*)

--

-ve

Board Size (*BS*)

-ve

--

CEO Duality (<i>CD</i>)	--	-ve
---------------------------	----	-----

Ownership Structure:

Foreign Ownership (<i>FO</i>)	-ve	+ve
State Ownership (<i>SO</i>)	-ve	+ve
State Control Firm Attribute (<i>SC</i>)	+ve	--

Control Variable:

Firm Size (<i>FS</i>)	+ve	+ve
Return on Assets (<i>ROA</i>)	-ve	-ve
Tobin's q (<i>TQ</i>)	--	--
Stock Return Volatility (<i>VOL</i>)	--	--

Note: '—', '+ve', and '-ve' represent insignificant association, significant positive association, and significant negative association.

6.5. Discussion and Implication

As asserted by Berger et al. (1997) and Jensen (1986), board members and managers tend to avoid pressure from investors, and the monitoring of debt lenders by using less debt financing. On the other hand, investors tend to pressure the board to use more debt financing, which can grow the business more rapidly. The conflict between investors and the company's board not only increases agency costs (Karolyi, 2006; Sabbaghi, 2016; Gul et al., 2012; Jensen, 1986) but also characterizes the capital structures of the companies.

First, both the independent director ratio and the CEO duality have significant negative associations with the long-term debt ratio. Thus, the implication is that both independent directors and CEO duality tend to use less long-term debt to finance companies' investments to avoid the pressure from investors and the monitoring from debt lenders. The implication of the negative relationship between the independent director ratio and long-term debt ratio is consistent with the assertions of Jensen (1986), Thakolwiroj and Sithipolvanichgul (2021), and Wen et al. (2002), while the negative influence of CEO duality on the long-term debt ratio is in line with the findings of Amin et al. (2022) and Berger et al. (1997).

Second, the board size is found to have a significant negative association with the short-term debt ratio. It implies that a larger board is inclined to use fewer short-term debts to avoid investors' pressure and escape debt lenders' monitoring. The regression results of board size are inconsistent with the findings of Amin et al. (2022) and Feng et al. (2020) who report a positive relationship between board size and debts, such as a firm with a larger board size using more debt financing. Thus, evidence of avoiding investors' pressure and escaping lenders' monitoring in board members, including the independent directors and CEO duality, of Chinese dual-listed companies is observed in this paper and is consistent with the agency theory (Jensen & Meckling, 1976; Zou & Xiao,

2006; Karolyi, 2006; Gul et al., 2012).

Third, both foreign ownership and state ownership have significant negative associations with the short-term debt ratio and significant positive associations with the long-term debt ratio. Both foreign investors and the Chinese government (proxied by state ownership) prefer the companies to use more long-term debt and less short-term debt. The influence, and hence the interests, of both foreign investors and the Chinese government are aligned in determining the Chinese dual-listed companies' capital structures. The positive impacts of foreign ownership and state ownership on long-term debt ratio are consistent with Bhabra et al. (2008) as the use of debt financing can grow the business more rapidly.

Last, the state control firm attribute is found to have a significant positive association with the short-term debt ratio, but an insignificant negative association with the long-term debt ratio. It implies that state-controlled Chinese dual-listed companies prefer to use more short-term debt to finance their investments. Besides, the association between *SC* and long-term debts is insignificant (even though negative). We cannot conclude that state-controlled Chinese dual-listed companies are easier to receive the Chinese government's policy support, such as easier to issue equities, and in return decline the use of long-term debt financing. Thus, our findings are inconsistent with the assertions of Vijayakumaran and Vijayakumaran (2019) and Boateng et al. (2017). In addition, the state control firm attribute positively influences the short-term debt ratio only. While state ownership negatively influences the short-term debt ratio, and positively influences the long-term debt ratio. The contradictory regression results between state ownership and state control firm attribute legitimize our argument that state ownership and state control firm attribute are two different concepts.

In summary, evidence of using less debt financing to avoid pressure from investors, and to escape the debt lenders' monitoring is found in the independent director ratio, the board size, and the CEO duality. Both foreign investors and the Chinese government (proxied by state ownership) prefer to use more long-term debt and less short-term debt, and their interests are aligned. The influences of state control firm attribute that represent both ownership rights and manipulation rights of the Chinese government are different from those of state ownership. State-controlled Chinese dual-listed companies prefer to use more short-term debt. No evidence is observed to show that the government's policy supports decline the state-controlled Chinese dual-listed companies' demand for long-term debt financing. The regression results are supportive of our argument that state control firm attribute and state ownership are distinct concepts.

Furthermore, researchers are suggested to separately consider the effects due to ownership rights and manipulation rights when analyzing the influence of the government. Policymakers should consider improving the quality of corporate governance practices to ensure board members act diligently and prevent board members from avoiding the investors' pressure and escaping debt lenders' monitoring.

7. SUMMARY AND CONCLUSION

This research aims to examine the impacts of corporate governance mechanisms and ownership structure on the capital structure of Chinese dual-listed companies. In this research, the Chinese

dual-listed companies are the Chinese companies that have core businesses in China and list their shares in the China A-share market, a segmented emerging market, and the Hong Kong market, a world-class market, simultaneously. 75 non-financial Chinese dual-listed companies from 2003 to 2019 are selected for this research. There are 758 firm-year observations in the panel data. Both the short-term debt ratio and the long-term debt ratio are the dependent variables to proxy the capital structure in the regression models. A state control firm attribute (a binary variable that is equal to 1 if the company's controlling shareholder is the Chinese government, or 0 otherwise), is introduced in this research to proxy the political connection to the Chinese government. Other primary variables are the independent director ratio, board size, CEO duality, foreign ownership, and state ownership.

The regression results show that both the independent director ratio and CEO duality are significantly and negatively associated with the long-term debt ratio. The board size is found to have a significant negative association with the short-term debt ratio. Evidence of avoidance of investors' pressure and escape of debt lenders' monitoring is found in independent directors, CEO duality, and other board members.

Further, both foreign ownership and state ownership are significantly and negatively associated with the short-term debt ratio, but their associations with the long-term debt ratio are positive and statistically significant. Both foreign investors and the Chinese government prefer Chinese dual-listed companies to use more long-term debt financing to boost growth. Thus, their interests are aligned.

Moreover, the state control firm attribute is revealed to be significantly and positively associated with the short-term debt ratio only. The influences of state control firm attribute are different from those of state ownership. State-controlled Chinese dual-listed companies prefer to use short-term debt financing only. However, evidence of declining use of long-term debt financing due to policy support from the government, such as making it easier to issue equities, is not observed in this paper. The findings legitimize our argument that state ownership and state control firm attribute are two different concepts. The latter embraces ownership rights and manipulation rights.

The firm size positively and significantly associates with both the short-term debt ratio and the long-term debt ratio, while *ROA* negatively and significantly associates with short-term debt ratio and long-term debt ratio. The regression results of *ROA* show that better performing companies have more retained earnings and use less debt financing. No significant associations are discovered in both Tobin's *q* and stock return volatility in regressions with the short-term debt ratio and the long-term debt ratio.

The theoretical implication of this study is the legitimation of our argument that state ownership and state control firm attribute are two distinct concepts, and their impacts on Chinese dual-listed companies' capital structure are different. Methodologically, the state control firm attribute should be taken into account when analyzing the government's political intervention, as the use of state ownership may fail to fully proxy the government's manipulation rights. Moreover, our findings practically provide supportive reasons for investors and stakeholders to develop new schemes to incentivize board members or the management team to use more debt financing to grow the business rapidly.

To the best of our knowledge, this is the first research to examine the impacts of corporate governance mechanisms and ownership structure on the capital structure of non-financial Chinese dual-listed companies. The research results complement prior studies and constitute new knowledge to fill the gaps related to the fields of capital structure and cross-listing in literature and provide valuable reference information to investors to evaluate the capital structures of Chinese dual-listed companies.

The limitation of this study is the small number of selected non-financial Chinese dual-listed companies. Since there were only 114 Chinese dual-listed from 2003 until 2019, and after discarding 14 companies with incomplete or missing data, and 25 financial companies, only 75 non-financial Chinese dual-listed companies are left for this study.

Future research is suggested to take state control firm attribute into account when investigating how the corporate governance mechanisms and ownership structure affect the capital structure decisions of companies from other emerging markets that cross-list to other developed host markets, such as the US market or the London market.

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