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RESEARCH ARTICLE

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Ownership structure, economic fluctuation, and capital structure: Evidence from China

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Abstract

We investigate the influence of controlling shareholders, including governmental ownership, on the debt levels of Chinese firms during varying economic conditions. Consistent with previous research, we find that listed firms in China have significantly more short-term debt than long-term debt. We also find that as the percentage ownership of the largest shareholder increases, less debt (as a percentage of total assets) is generally preferred. During economic slowdowns, firms tend to reduce their short-term debt levels, although long-term debt appears to increase.

Further tests reveal that entrepreneur-controlled firms reduce long-term debt during economic slowdowns, suggesting that they take into consideration the implications of changes in macroeconomic conditions for earnings and liquidity when making debt financing decisions. However, we also find that State-controlled firms in China tend to increase short-term borrowing during declines in macroeconomic conditions, consistent with the implications of "tunneling and propping."

KEYWORDS

capital structure, economic fluctuation, State control

1 | INTRODUCTION

We investigate the capital structure choice of Chinese firms with different levels of controlling interest and under changing economic conditions. It is common among Chinese firms for the controlling shareholder to be the State, and State ownership differs from non-State control in important ways.[1] Most corporate debt in China is composed of short-term bank loans, because the bond market is underdeveloped (Chen, 2004; Huang & Song, 2006; Tian & Estrin, 2007). State-owned banks dominate the finance industry in China, and research suggests that firms controlled by the State tend to get preferential access to credit (Brandt & Li, 2003; Chen, Chen, Lobo, & Wang, 2010; Fan, Wong, & Zhang, 2005; Ruan, Cullen, Ma, & Xiang, 2014). Li, Yue, and Zhao (2009) report that State-controlled banks are pressured to loan primarily to State-owned enterprises (SOEs), with little concern over creditworthiness.[2]

Management decisions in State-controlled firms often appear to be driven by social concerns, rather than by

[1]We refer to the government of the Peoples Republic of China as the State and regard sample firms to be State-controlled if shareholdings by government departments and State-owned enterprises (SOEs) comprise the largest block. Firms not controlled by the State have individuals or groups of investors as the largest voting block; we refer to these sample firms as entrepreneur-controlled.

[2]Li et al. (2009) focus on unlisted firms and note that large listed firms are less subject to domestic institutional constraints. Other research has reported similar findings (e.g., Allen, Qian, & Qian, 2005; Gordon & Li, 2004).

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profit maximization. For example, prior research has linked government actions to economic fluctuations through "tunneling and propping," that is, controlling shareholders appear to bolster the firm during economic slowdowns but extract economic resources at the expense of noncontrolling shareholders in good times (Dow & McGuire, 2009; Fan, Wong, & Zhang, 2007; Peng, Wei, & Yang, 2011). Taken together, the differing incentives and additional power of State controlling shareholders suggest that their preferences for debt financing during economic downturns would differ from those of non-State controlling shareholders.

We find that the percentage ownership of the controlling interest is negatively related to debt levels, in general. However, during economic downturns, State-controlled firms appear to increase their short-term debt levels. This result is consistent with predictions by Diamond (1991) and Sorge, Zhang, and Koufopoulos (2016) that firms in countries with poor creditor protections will increase borrowing when liquidity tightens. It is also consistent with the theory of tunneling and propping in that State-controlling shareholders appear to prop their firms as the economy slows. In contrast, entrepreneur-controlled firms appear to reduce their long-term debt during economic slowdowns.

We use a sample of Chinese firms from 1998 to 2015 to explore controlling shareholders' preference for additional debt during periods of declining economic growth. We choose Chinese firms for several reasons. First, although China's growth has fluctuated, it has not dipped below 6% in the last 25 years. China is also the world's most populous country and the world's second-largest economy in terms of gross domestic product (GDP). Furthermore, the relatively high concentration of controlling ownership interests found in Chinese firms provides an ideal setting to explore the power that controlling shareholders exert during times of economic fluctuation.

Previous research in the field of capital structure has not focused on the association between debt financing and economic fluctuation in an emerging market and across differing control structures. Our study may thus enrich the finance literature by increasing understanding of how State control and changes in economic conditions affect capital structure in China, arguably the largest emerging market in the global economy.

The paper proceeds as follows. The next section provides a brief review of the relevant research literature and identifies questions to be addressed. We then describe sample selection and research design, followed by a section containing our empirical results. We conclude with a brief summary and discussion of our findings.

2 | BACKGROUND

2.1 | Capital structure theories

Monitoring, signalling, pecking order theory, trade-off theory, agency theory, and tunneling and propping have been advanced as explanations for the financing choices of firms. For example, researchers have noted that China lacks the strong "monitoring" by internal and external parties that more developed nations enjoy, such as the United Kingdom and the United States. In particular, the role of State institutions in monitoring both management and controlling interests is limited because of weaknesses in China's legal and regulatory framework (Cheng, Wang, & Wei, 2015). Yang, Chi, and Young (2011) note that as of 2009, more than 50% of all listed-firm shares were owned or controlled by the State. Monitoring is particularly weaker in China for SOEs; due to the large State shareholdings, as well as the absence of an independent judiciary, corporate governance measures that appear to work in more developed nations are less effective in China (Fan et al., 2007).[3]

Bond issuances are rare in China, so monitoring by bondholders is largely absent. State-owned banks dominate banking as well as corporate ownership. Because financial interests are subordinate to socio-political goals in SOEs, the banks are not effective monitors (Tian & Estrin, 2007).

"Signalling" theory suggests that managers signal growth opportunities by increasing leverage; moreover, higher leverage may indicate quality because leverage indicates that creditors do not view bankruptcy risk as a major issue. However, Chen (2004) points out that this motivation alone is too costly to be a viable strategy for financially stressed firms. Additionally, Su (2004) notes that because State-owned banks are essentially a monopoly in China, loans may be viewed as grants or as bailouts, rather than positive signals.[4]

"Pecking order" theory holds that firms in need of capital to enable growth generally prefer to self-finance; if outside funds are needed, firms tend to borrow before resorting to equity issuance. This suggests a financing preference ordering (pecking order) of retained earnings first, then debt issuance, and then equity (Su, 2004). Huang and Song (2006), however, speculate that Chinese firms prefer equity financing over debt because the former lacks the contractual constraints imposed by debt; also, Chinese firms tend to have higher market-to-book ratios, so more funds are received from equity issuance

[3]For example, there is no active takeover market to discipline management in China (Su, 2004).

[4]One result of this view of loans is a higher percentage of troubled debt.

than in other countries.[5] Chen (2004) similarly concludes that the pecking order for Chinese firms is likely retained earnings first, then equity, and then debt.

Modigliani and Miller (1958) suggest a positive association between debt and tax rates due to the deductibility of interest. "Trade-off" theory promotes the idea of an optimal capital structure, which results from balancing the tax benefits of increasing debt against the accompanying higher agency and bankruptcy costs of debt (Jensen & Meckling, 1976; Kraus & Litzenberger, 1973; Myers, 1977; Su, 2004; Titman, 1984). However, Chen (2004) claims that neither trade-off nor pecking order theory provides a robust explanation for capital structure choice in China, maintaining that profound institutional differences between the economy of China and western economies limit the applicability of the traditional theories. For example, high amounts of leverage increase the probability of a firm's bankruptcy (Kraus & Litzenberger, 1973; Modigliani & Miller, 1958). Owner and managerial self-interest in the continued viability of the firm should thus induce firms to lower debt (consistent with trade-off theory). However, as mentioned above, the State owns or controls banks and financial institutions in China and is a major shareholder of most firms; this, when combined with weak corporate governance, reduces the traditional risks and constraints on debt and equity issuance posed by financial pressures.

"Agency" theory suggests that controlling shareholders are able to monitor and moderate management behaviour, reducing potential costs of agency conflicts (Huddart, 1993, Shleifer and Vishny, 1997; Holderness, 2003). Additionally, large firms with comparatively diluted ownership may issue debt to better constrain and control management behaviour (Jensen, 1986). Chen (2004), however, maintains that traditional agency theory does not apply in China, due to the concentrated ownership that is prevalent there.

Under a more concentrated ownership structure, the nature of the conflict shifts from shareholder–manager ("principal–agent") towards conflict between the controlling and minority shareholders, that is, "principal–principal" (Berle & Means, 1932; Jensen & Meckling, 1976; Johnson, La Porta, Lopez-de-Silanes, & Shleifer, 2000; Faccio & Lang, 2002; Holderness, 2003; Ehrhardt & Nowak, 2003; Edwards & Weichenrieder, 2004; Cheung et al., 2006). In particular, controlling shareholders are in a position to maximize their wealth at the expense of noncontrolling shareholders through capital structure manipulation (Anup & Charles, 1996; Faccio, Lang, & Young, 2001; Friend & Lang, 1988; Harris & Raviv, 1988; Harvey, Lins, & Roper, 2004; Jensen & Meckling, 1976; Stulz, 1990). For example, a controlling shareholder may be motivated to invest borrowed funds in riskier assets than other investors are comfortable with (Jensen & Meckling, 1976, Shleifer and Vishny, 1997).

Yang et al. (2011) also report that the management of firms with State control does not have the traditional agency conflict with shareholders, because the management is appointed by the State and does the government's bidding.[6] Moreover, the State owners of Chinese firms have been previously reported to be more intent on pursuing political objectives, to the detriment of other stakeholders (Banerjee, 1997; Hart, Shleifer, & Vishny, 1997; Khwaja & Mian, 2005; Shleifer & Vishny, 1994).

Researchers have suggested that the resource expropriation versus shared benefits aspect of a principal–principal conflict may take the form of "tunneling" and "propping" behaviour by the controlling firm. Johnson et al. (2000) describe tunneling as the expropriation of a firm's resources by controlling shareholders at the expense of the noncontrolling shareholders, in resonance with the issues identified by Jensen and Meckling (1976) and Shleifer and Vishny, (1997).[7] Similarly, Dow and McGuire (2009) maintain that tunneling is said to have occurred when a firm's owners consume the firm's resources at the expense of other stakeholders and also note that tunneling is more common in emerging markets when rights to cash flows are exceeded by control rights.

In contrast, propping is the provision of economic benefits to distressed firms by stronger members of a business group as a means of securing future tunneling opportunities (Bertrand & Mullainathan, 2003). Dow and McGuire (2009) find that propping among Japanese keiretsu firms occurs most in times of financial distress, whereas tunneling occurs during periods of economic expansion.[8] Peng et al. (2011) find that controlling shareholders in China appear to prop their firms in bad times but tunnel in good times, supporting the findings of Fan et al. (2007) and Dow and McGuire (2009) that

[5]However, if information asymmetry is high, management may feel that a firm's stock is underpriced, reducing its attractiveness as a source of capital and leading to an increase in debt issuance.

[6]This conflict is most severe when controlling shareholders have nontradable shares (Zou, Wong, Shum, Xiong, & Yan, 2008). Different classes of tradable and nontradable shares are a characteristic of China's split-share corporate economy.

[7]Atanasov et al. (2008) identify three types of tunneling: asset tunneling (e.g., transfers of assets among related parties at prices not reflecting fair value), cash flow tunneling (e.g., excessive executive compensation), and equity tunneling (e.g., insider trading). Any of these could affect a number of our control variables.

[8]Members of a keiretsu (a group of Japanese firms) maintain shareholdings in each other and cooperate in commerce.

propping (tunneling) government intervention increases as firm performance declines (improves).

Against this theoretical background, we examine cross-sectional differences in relative debt levels (capital structure) of Chinese firms, allowing for varying percentages of controlling interest as the economy experiences growth rate fluctuation over time. We initially focus on whether the size of the controlling interest (whether State or entrepreneur control) affects the capital structure choice and whether the decision to alter a firm's leverage is affected by changing economic conditions. Subsequently, we partition the controlling interest into State and entrepreneur control and examine changes in short-term versus long-term debt in more detail.

Harvey et al. (2004) find that higher ownership levels provide benefits to controlling shareholders that are shared with other stakeholders, reducing the need for debt as an internal control mechanism. Controlling interests thus may desire additional resources from increased borrowing yet seek to avoid the increased monitoring, cost, and risk that debt brings. Huang and Song (2006), however, claim that neither State control nor institutional ownership has a significant effect on debt levels. This suggests our first research question,

Q1: Is the leverage of Chinese firms declining in the size of the controlling interest?

According to Harvey et al. (2004), we may expect that the association between debt and controlling interest is negative (in accordance with agency theory and trade-off theory), whereas Huang and Song (2006) appear to imply the opposite (in keeping with signalling and the traditional pecking order).

2.2 | Economic fluctuation in China

Classical economic fluctuation concerns the volatility of economic output; for example, the annual GDP may grow year-to-year but then shrink during a recession. Economic growth rate fluctuation, however, refers to changes in a persistently positive annual economic growth rate. The present Chinese economy experiences growth fluctuation, particularly for the firm years in our sample.

In Table 1, we report annual growth rates for the Chinese economy between 1998 and 2015 inclusive, obtained from the Chinese Statistics Bureau. From a peak of 14.2% (untabulated) in 1992, the Chinese economic growth rate dropped continuously until settling at 7.6% in 1999. The Chinese economy exhibited no negative annual GDP growth during this period; however, declines in the overall positive growth rate occurred in 1999 and 2001. The Chinese economy subsequently began to develop steadily again in 2002. However, the consumer price index and inflation rate gradually increased as well. In response, the government executed a series of macroeconomic policies, causing companies to face an even more complicated business environment. The growth rate dipped again in 2008 and has been declining annually since 2010.[9]

TABLE 1 Chinese GDP growth rate, by year, from 1998 to 2015

Year	GDP yearly growth rate (%)
1998	7.80%
1999	7.60%
2000	8.40%
2001	8.30%
2002	9.10%
2003	10.00%
2004	10.10%
2005	10.40%
2006	11.60%
2007	13.00%
2008	9.60%
2009	9.24%
2010	10.63%
2011	9.49%
2012	7.75%
2013	7.69%
2014	7.37%
2015	6.90%

Decisions to issue debt and accept its risk are influenced by economic conditions, and previous research has suggested that company strategy should adjust with economic fluctuation (Dhalla, 1980; Greer, 1984; Mascarenhas & Aaker, 1989; Zarnowitz, 1985). In times of declining economic activity, with decreased liquidity and earnings and increasing risk of financial distress, we expect that firms would be motivated to avoid the monitoring and constraints on cash disbursement imposed by debt. Firms would thus choose to carry less debt during periods of slower economic growth (consistent with trade-off theory). This suggests the research question,

Q2: Do Chinese firms reduce borrowing as the economic growth rate slows?

[9]Similarly, no quarters of negative GDP growth were found; these untabulated results are available from public sources.

2.3 | Short-term versus long-term debt in China

We additionally focus on the choice between issuing long-term rather than short-term debt. The differences in the capacities of long- and short-term creditors as monitors may influence borrowers' incentives to accept the additional risk of debt during economic slowdowns. For example, long-term creditors enforce their rights via formal covenants in order to facilitate ongoing monitoring of borrowers (Dichev and Skinner, 2002). Sometimes viewed as more restrictive than short-term debt agreements, long-term covenants allow creditors specific rights to take control of the firm under certain conditions (Jensen & Meckling, 1976; Smith & Warner, 1979).

In contrast, short-term credit arrangements come up for renewal in the near term, enabling creditors to compel firms to regularly provide their operational and financial information (Rajan & Winton, 1995; DeAngelo, DeAngelo, & Wruck, 2002; Diamond & Rajan, 2001). Previous research has noted that short-term creditors may also monitor borrowers with greater intensity than long-term creditors are able to (Gul & Goodwin, 2010; Rajan & Winton, 1995; Stulz, 2000), and short-term creditor monitoring has been associated with better governance mechanisms (Gul & Goodwin, 2010).

Although the monitoring provided by creditors can generally reduce costs associated with agency conflicts (Agrawal & Knober, 1996; Berger, Ofek, & Yermack, 1997; Grossman & Hart, 1982; Kim & Sorensen, 1986), the same might not hold in China for conflicts between noncontrolling shareholders and the State. For example, long-term financing in China is usually through equity issuance, which is attractive to shareholders due to large capital gains and favourable tax treatment. Equity financing in China is viewed as "free" financing because of its nonbinding nature and the poor corporate governance protections for individuals (Chen, 2004). Access to long-term debt in China is mostly through loans from State-controlled banks, because of the underdeveloped public bond market. Short-term financing (apart from trade accounts payable) is also generally through loans from State-owned banks. Periodically renewing short-term debt may impede long-term investment and growth (Sorge et al., 2016). As a result, issuing short-term debt and subsequently renewing it may provide a positive signal of a firm's favourable prospects (Flannery, 1986) as well as indicate a commitment to restrict ex post cash flow diversion.

Diamond (2004) notes that debt maturities tend to shorten when contract enforcement is ineffective. Thus, when creditor rights are weak, short-term debt may no longer necessarily indicate firm quality, although it still imposes a cash flow diversion restriction. Sorge et al. (2016) similarly report that countries with weaker creditor rights, ineffective legal enforcement, or higher corruption have a greater percentage of short-term debt. Generally, creditors have few protections in China (Chen, 2004); short-term debt averages 78% of all debt in China, higher than in any other country (Sorge et al., 2016).

Information asymmetry strengthens the negative association between liquidity risk and debt maturity, because more short-term debt is required to adequately communicate a commitment to cash flow diversion restrictions (Diamond, 1991). Weak creditor rights and contract enforcement in China, and the lack of credit-reporting agencies, indicate less information sharing and higher information asymmetry over firm prospects. Thus, as the economy slows and liquidity risk rises, the issuance of short-term debt becomes more likely (Sorge et al., 2016). Chen (2004) notes the preference for short-term debt in China, and Li et al. (2009) conclude that poorly developed legal and institutional development leads to more short-term than long-term debt.[10]

Wooldridge (2012) notes that top executives of many large Chinese firms serve on the party's central committee and appear to focus more on satisfying party objectives than on enterprise. State propping suggests that debt may increase as the economy slows for State-controlled firms.[11] Given the information asymmetry and poor creditor protections in China, as the economy slows, we expect that short-term debt levels for SOEs may increase (Diamond, 1991; Diamond, 1993; Flannery, 1986; Sorge et al., 2016). Moreover, because benefits accruing to controlling interests are increasing in their ownership level (Harvey et al., 2004), the utilization of short-term debt as the economic growth rate slows may also increase with the controlling interest. On the other hand, entrepreneur-controlled firms will not have access to propping from State-controlled financial institutions. They may also not be able to afford the added cash flow restrictions from debt during economic slowdowns and may thus prefer to retire indebtedness. This leads to our final research question,

Q3: Are the short-term debt levels of Chinese firms increasing in controlling interests as the economy slows?

[10]Chen (2004) and Huang and Song (2006) focus on long-term and total debt, not on short-term debt.

[11]Similarly, when growth increases, debt should decline to reduce creditors' monitoring and enable tunneling.

3 | MODEL AND DATA

3.1 | Data

Our sample is composed of all firms listed on both the Shanghai and Shenzhen stock exchanges that have sufficient data for our tests. Ownership data are collected from the China Wind Financial Database; accounting data are retrieved from the China Stock Market and Accounting Research database. From an initial sample consisting of 25,048 firm years for the period from 1998 through 2015 inclusive, 191 firm-year observations are lost from merging the databases. Another 637 observations are subsequently deleted due to missing data for the calculation of share ownership percentages, resulting in a final sample of 24,220 observations.[12]

3.2 | Model and variables

The dependent variables we use to address our research questions (*Q1–3*) are the total debt-to-assets ratio, the short-term debt-to-assets ratio, and the long-term debt-to-assets ratio. On the basis of previous research, we include the percentage ownership of the largest shareholder as an explanatory variable to capture the influence of large-block or controlling shareholders (Wang, Manry, & Wandler, 2011). A qualitative variable is used to signify whether firm-year data points occur during a year in which the growth rate of the Chinese economy had slowed (1999, 2001, 2008, 2009, 2011–2015), and 11 qualitative variables control for 12 industrial classifications within the pooled firm-year sample. We also add a number of variables to control for influences identified in previous studies on capital structure (e.g., Atanasov, Black, & Ciccotello, 2008; Dow & McGuire, 2009). These include the following influences: tangible assets, firm size and growth prospects, profitability, free cash flow (FCF), nondebt tax shields, volatility, the tax rate, and liquidity. Our model is

$$\begin{aligned} DEBT_{it} = {} & \beta_0 + \beta_1 BIG_{it} + \beta_2 DOWN_{it} + \beta_3 TANG_{it} \\ & + \beta_4 SIZE_{it} + \beta_5 MB_{it} + \beta_6 ROA_{it} + \beta_7 FCF_{it} \\ & + \beta_8 NDTS_{it} + \beta_9 VOL_{it} + \beta_{10} TAX_{it} \\ & + \beta_{11} CAL_{it} + \sum_{k=1}^{K} \beta_{11+k} IND_k + \varepsilon_{it} \end{aligned} \quad (1)$$

where

$DEBT_{it}$ $TDEBT_{it}$ = (total liabilities$_{it}$)/(total assets$_{it}$) or $SDEBT_{it}$ = (short-term debt$_{it}$)/(total assets$_{it}$) or $LDEBT_{it}$ = (long-term debt$_{it}$)/(total assets$_{it}$), for firm i at end of year t, where t ∈{1998, 1999, ..., 2015}[13];

BIG_{it} the percentage ownership of the largest shareholder;

$DOWN_{it}$ a qualitative variable that equals 1 if Chinese GDP growth is slower during the year of the firm-year observation than in the previous year, and 0 otherwise;

$TANG_{it}$ tangible assets, (fixed assets$_{it}$ + inventory$_{it}$)/(total assets$_{it}$);

$SIZE_{it}$ the natural log of total assets$_{it}$;

MB_{it} the market-to-book ratio;

ROA_{it} (net income$_{it}$)/(total assets$_{it}$);

FCF_{it} (free cash flow$_{it}$)/(total assets$_{it}$);

$NDTS_{it}$ nondebt tax shield, (depr. expense$_{it}$ + amortization$_{it}$)/(total assets$_{it}$);

VOL_{it} volatility, the 3-year moving average of the standard deviation of net income$_{it}$;

TAX_{it} the corporate tax rate of firm i in year t;

CAL_{it} short-term liquidity (current assets$_{it}$)/(current liabilities$_{it}$); and

IND_k a series of (K = 11) dummy variables to control for 12 industrial classifications within the pooled firm-year sample.[14]

Our first two research questions concern the association between debt levels and the size of the controlling interest (*Q1*) and whether China is experiencing slower economic growth (*Q2*). We operationalize our expectations as the following (alternative) hypotheses:

H1. The coefficient on BIG will not be zero.

H2. The coefficient on DOWN will be negative.

3.3 | Controls

Tax (TAX, omitting firm-year subscripts): Debt ratios should be increasing in tax rates due to the tax shield effect of interest deductibility, consistent with the trade-off theory. Researchers have found a significant positive association between debt and tax rates (Bradley, Jarrell, & Kim, 1984; Chen, 2004; Huang & Song, 2006; MacKie-Mason, 1990). For example, An (2012) notes that Chinese foreign investment enterprises raised their debt levels following the removal of preferred tax treatments and concludes that taxation is an important determinant of optimal capital structure.

[12]Data have been winsorized at 1% (each tail).

[13]Dow and McGuire (2009) and others also standardize parametric variables by total assets.

[14]Wooldridge (2012) suggests that it may be possible for State capitalism to work well for some industries but poorly for others.

Size (SIZE): Chen (2004) notes that because information asymmetry is lower for large Chinese firms, they prefer to issue equity at a price perceived to be advantageous. Further, as size increases, long-term debt decreases, consistent with the argument that the pecking order in China is retained earnings first, then equity, then debt. Chen (2004) also reports that short-term debt increases with firm size.

Agency theory suggests that firms with diluted ownership may issue debt to restrict management behaviour. In China, however, the State is often the largest shareholder, so diluted ownership is not an issue. Trade-off theory suggests that larger firms would have more debt because they have less bankruptcy risk, and most studies report a positive association between size and debt levels (Friend & Lang, 1988; Givoly, Hayn, Ofer, & Sarig, 1992; Harris & Raviv, 1990; Huang & Song, 2006; Rajan & Zingales, 1995).

Tangible assets (TANG): Trade-off theory suggests that the association between tangible assets and debt should be positive; tangible assets reduce the negative influence of bankruptcy risk and may be used as collateral for loans (Huang & Song, 2006). Previous research has confirmed a positive association between debt and tangibility (Chen, 2004; Harris & Raviv, 1990; Huang & Song, 2006). We expect DEBT to be increasing in both SIZE and TANG.

Profitability (ROA): Profitability captures the ability of a firm to self-finance. Previous research has found that debt decreases with profitability (Chen, 2004; Harris & Raviv, 1990; Huang & Song, 2006; Sorge et al., 2016; Titman & Wessels, 1988) consistent with the pecking order theory.

Growth opportunities (MB): Signalling theory suggests that the association between debt and growth opportunities should be positive; firms with great prospects may signal their quality through increased debt issuance. Moreover, if earnings prospects are recognized by banks and markets, growth opportunities should enable increased borrowing. Consistent with this view, Harris and Raviv (1990) and Chen (2004) find that debt increases with growth opportunities. Agency theory, however, suggests that firms with greater growth opportunities should prefer to keep leverage low in order to avoid transferring future wealth gains to creditors. Additionally, growth prospects are an intangible asset that cannot be collateralized; if prospects are not recognized by banks and the stock market, trade-off theory suggests that the relationship should be negative (Chen, 2004). Huang and Song (2006) find that the association between long-term and total debt and growth opportunities is negative. We expect debt to be decreasing as MB and ROA increase, because the need for debt financing diminishes as growth accelerates. Additionally, because CAL (short-term liquidity) also represents the ability of a firm to self-finance, DEBT should be decreasing in CAL (Booth, Aivazian, Demirguc-Kunt, & Maksimovic, 2001; Gul, 1999; Kim & Sorensen, 1986; Rajan & Zingales, 1995). FCF captures not only the ability to repay but also the ability to self-finance; it thus could be either increasing or decreasing in DEBT.

Nondebt tax shields (NDTS) suggest greater tangible assets, which reduce bankruptcy risk (trade-off theory), and suggest a positive association with debt. Harris and Raviv (1990) find that debt increases with NDTS, consistent with this theory. However, nondebt-related

TABLE 2 Descriptive statistics for model variables, sample of Chinese-listed firms from 1998 through 2015 inclusive (25,048 firm years)

Variable	Mean	Median	Min.	Max.	Std. Dev.
$TDEBT_{it}$	0.442	0.443	0.015	0.996	0.202
$SDEBT_{it}$	0.364	0.353	0.013	0.994	0.181
$LDEBT_{it}$	0.077	0.035	0.000	0.803	0.101
BIG_{it}	0.387	0.368	0.003	0.900	0.163
$DOWN_{it}$	0.636	1.000	0.000	1.000	0.481
$TANG_{it}$	0.390	0.387	0.000	0.971	0.196
$SIZE_{it}$	21.607	21.429	17.497	28.509	1.243
MB_{it}	2.176	1.627	0.054	19.896	1.951
ROA_{it}	0.070	0.062	−0.641	2.939	0.069
FCF_{it}	−0.025	0.011	−4.061	1.086	0.165
$NDTS_{it}$	0.025	0.022	0.000	0.876	0.018
VOL_{it}	0.097	0.043	0.001	2.933	0.182
TAX_{it}	0.195	0.166	0.000	0.995	0.134
CAL_{it}	2.292	1.490	0.027	29.920	2.705
GOV_{it}	0.538	1.000	0.000	1.000	0.499
ENT_{it}	0.462	0.000	0.000	1.000	0.499

Note. BIG_{it}: the percentage ownership of the largest shareholder (generally the State); CAL_{it}: current assets/current liabilities; $DOWN_{it}$: a qualitative (1, 0) variable that is equal to 1 if the GDP growth rate is lower compared with the previous year; ENT_{it}: 1–GOV_{it}, a qualitative (1, 0) variable where ENT_{it} = 1 indicates the firm is entrepreneur-controlled, and 0 otherwise. FCF_{it}: free cash flow/total assets; GOV_{it}: a qualitative (1, 0) variable that is equal to 1 if the firm is controlled by government departments and/or SOEs, else 0; $LDEBT_{it}$: dependent variable long-term debt ratio, long-term liabilities/total assets; MB_{it}: the market-to-book ratio; $NDTS_{it}$: nondebt tax shield (accumulated depreciation + amortization)/total assets; ROA_{it}: net income/total assets; $SDEBT_{it}$: dependent variable short-term debt ratio, short-term liabilities/total assets; $SIZE_{it}$: the natural log of total assets; $TANG_{it}$: (fixed assets + inventories)/total assets; TAX_{it}: corporate tax rate; $TDEBT_{it}$: dependent variable total debt ratio, total liabilities/total assets of firm i in year t; VOL_{it}: volatility (3-year moving average of standard deviation of net income/total assets).

deductible expenses (e.g., depreciation) reduce the utility of interest deductions. If the tax benefits of debt and nondebt tax shields substitute for each other, then the association between debt and NDTS should be negative (DeAngelo & Masulis, 1980; Huang & Song, 2006; Titman & Wessels, 1988; Wald, 1999**)**. We thus expect that DEBT will be decreasing in nondebt tax shield amounts.

Volatility (VOL) is a proxy for business distress and is often negatively associated with debt (Harris & Raviv, 1990; Huang & Song, 2006). However, internal financing may not be feasible for firms with higher earnings variability. Given our previous discussion of propping and the preponderance of State ownership of Chinese-listed firms and banks, we expect that the association between DEBT and VOL will be positive.

4 | RESULTS

4.1 | Descriptive statistics

Table 2 provides descriptive statistics for variables used in this study. The means and medians of most variable data distributions are fairly close, suggesting that the data are not skewed.[15] Stock values (i.e., the numerator of MB) are based on (tradable) "A"-share prices, and accounting data follow Chinese accounting standards. The average total debt-to-assets ratio (TDEBT) is lower than 50%, indicating that Chinese-listed firms prefer equity financing; a comparison of debt ratios suggests that total debt is mostly short term (SDEBT). The variable BIG, denoting the percentage share ownership of the largest blockholder, has a mean and median of 38.7% and 36.8%, respectively. These statistics suggest that significant large-block shareholdings and control, if not majority ownership, are fairly common in the sample.

China continues to host a State-controlled corporate economy, with stock exchanges in Hong Kong, Shenzhen, and Shanghai. Chinese firms have a "split-share" structure, with multiple stock classes. Some shares are nontradable and may only be held by SOEs, nonbank financial institutions, other Chinese firms, and government departments. As a result, roughly one third of the shares of most listed firms are tradable "A" or "B" shares, and approximately two thirds of firms having tradable stock are either directly or indirectly State-controlled (Gul, Kim, & Qiu, 2010). Although the State-controlled economy as a percentage of GDP is reportedly shrinking, SOEs continue to comprise most of the stock market capitalization in China (Wooldridge, 2012).[16]

4.2 | Results of empirical tests

Table 3 provides a matrix of pair-wise Pearson correlation coefficients (and p values) between dependent and explanatory variables. The correlations are predominantly consistent with the variable interpretations we advance in the previous section. For example, debt ratios are positively correlated with SIZE (natural log of total assets) and TANG (tangible assets) but negatively correlated with ROA and NDTS (nondebt tax shields). SIZE, TANG, and NDTS are all significantly correlated (p values = 0.000) with each other, in keeping with the variables' interpretations as providing tax-saving deductions or, alternatively, risk (inverse) proxies. With respect to the latter interpretation, both SIZE and TANG are negatively correlated with MB (p values = 0.000), consistent with the market-to-book ratio interpretation as a risk proxy (Banz, 1981; Reinganum, 1981). As discussed previously, CAL (the current ratio) is negatively correlated with the debt ratios (p value = 0.000).[17] FCF is significantly negatively correlated with CAL, suggesting that the influences of these controls differ.

Results from estimating model (1), depicted in Table 4, show that the percentage ownership of the largest shareholder (BIG) is negatively associated with our dependent variables (p values = 0.000 for dependent variables TDEBT and SDEBT; p value = 0.001 for LDEBT).[18] This suggests that debt levels are declining as the largest shareholder's ownership ratio increases, consistent with Harvey et al. (2004). This finding affirms our first

[15]An exception is DOWN, which is a qualitative variable.

[16]The vast majority of China's tradable corporate equity is composed of "A" shares, which were originally only available for purchase by Chinese citizens on the Shanghai and Shenzhen markets. For these reasons, most researchers focus on "A" shares. Foreign institutional investors were allowed limited participation on the Hong Kong stock exchange (HKEX) through the Qualified Foreign Institutional Investor and Renminbi Qualified Foreign Institutional Investor programs, begun in 2002 and 2011 respectively. "A" shares became available to foreign individuals on the HKEX in November 2014 via the Shanghai-Hong Kong Stock Connect; the Shenzhen-Hong Kong Stock Connect was added later. H shares, available only on the Hong Kong stock exchange (HKEX), are open to foreign investors, comprise a smaller percentage of China's traded equity, and represent mostly China's IT and financial sectors (we delete financial firms from our sample).

[17]Although many of the pair-wise correlations are significant, the coefficient estimates from our models are likely unbiased asymptotically due to our large sample size. The variance inflation factors are less than five, suggesting that there is no serious collinearity.

[18]Other statistically significant coefficients in Table 4 have p values ranging from 0.005 to 0.000.

TABLE 3 Matrix of pairwise Pearson correlations (and *p* values) for model variables, sample of Chinese listed firms from 1998 through 2015 inclusive (25,048 firm years)[a]

	TDEBT	SDEBT	LDEBT	BIG	DOWN	TANG	SIZE	MB	ROA	FCF	NDTS	VOL	TAX	CAL
TDEBT	1.000													
SDEBT	0.866 0.000	1.000												
LDEBT	0.448 0.000	−0.059 0.000	1.000											
BIG	−0.029 0.000	−0.026 0.000	−0.010 0.000	1.000										
DOWN	−0.085 0.000	−0.112 0.000	0.031 0.000	−0.077 0.000	1.000									
TANG	0.324 0.000	0.218 0.000	0.257 0.000	0.044 0.000	−0.117 0.000	1.000								
SIZE	0.378 0.000	0.185 0.000	0.424 0.000	0.147 0.000	0.151 0.000	0.228 0.000	1000							
MB	−0.405 0.000	−0.306 0.000	−0.260 0.000	−0.059 0.000	0.044 0.000	−0.297 0.000	−0.485 0.000	1.000						
ROA	−0.240 0.000	−0.223 0.000	−0.080 0.000	0.081 0.000	0.015 0.020	−0.112 0.000	0.045 0.000	0.279 0.000	1.000					
FCF	0.174 0.000	0.211 0.000	−0.031 0.000	0.031 0.000	0.027 0.000	0.149 0.000	0.116 0.000	−0.136 0.000	−0.111 0.000	1.000				
NDTS	−0.013 0.000	−0.012 0.000	−0.018 0.005	0.087 0.000	−0.078 0.000	0.347 0.000	0.064 0.000	−0.059 0.000	−0.009 0.158	0.138 0.000	1.000			
VOL	0.202 0.000	0.233 0.310	0.016 0.000	−0.142 0.000	−0.142 0.000	−0.105 0.000	−0.290 0.000	0.176 0.000	0.053 0.000	−0.034 0.000	0.033 0.000	1.000		
TAX	0.158 0.000	0.134 0.000	−0.077 0.000	0.018 0.006	−0.061 0.000	0.160 0.000	0.133 0.000	−0.169 0.000	−0.018 0.005	0.043 0.000	0.008 0.200	−0.065 0.000	1.000	
CAL	−0.598 0.000	−0.558 0.000	−0.196 0.000	−0.042 0.000	0.106 0.000	−0.298 0.000	−0.216 0.000	0.287 0.000	0.131 0.000	−0.303 0.000	−0.196 0.000	−0.007 0.278	−0.102 0.000	1.000

[a]*p* values are two-tailed against the null that the correlation = 0.

Note. BIG: the percentage ownership of the largest shareholder (generally the State); CAL: current assets/current liabilities; DOWN: a qualitative (1, 0) variable that is equal 1 if the GDP growth rate is lower compared with the previous year; FCF: free cash flow/total assets; LDEBT: dependent variable long-term debt ratio, long-term liabilities/total assets; MB: the market-to-book ratio; NDTS: nondebt tax shield (accumulated depreciation + amortization)/total assets; ROA: net income/total assets; SDEBT: dependent variable short-term debt ratio, short-term liabilities/total assets; SIZE: the natural log of total assets; TANG: (fixed assets + inventories)/total assets; TAX: corporate tax rate; TDEBT: dependent variable total debt ratio, total liabilities/total assets of firm i in year t; VOL: volatility (three-year moving average of standard deviation of net income/total assets).

hypothesis H_1 and contradicts the idea that capital structure might be employed as a disciplining device to reduce agency conflict in China (Grossman & Hart, 1982; Jensen, 1986). Table 4 also shows that the total and short-term debt ratios are significantly lower during economic growth slowdowns (estimated coefficients on DOWN are negative), suggesting an affirmation of our H_2.[19] This result suggests that because declining conditions would increase firms' liquidity risk, creditors are likely less willing to lend during economic slowdowns, and borrowers choose to pay down liabilities and avoid the monitoring and cash constraints of short-term debt. When the long-term debt ratio is the dependent variable, however, the coefficient on DOWN is positive and significant. This result is consistent with firms choosing to extend debt payoff schedules during periods of less-robust growth in the Chinese economy.[20]

We find that firm size and tangible assets are positively associated with our debt variables, consistent with our expectations and the implication of trade-off theory that debt levels should be increasing in these variables.

[19]Because most corporate debt in China is short term, the signs of the coefficients on explanatory variables in the SDEBT and TDEBT models are often the same.

[20]Similarly, a decline in the level of short-term debt suggests that the long-term debt-to-assets ratio should increase, ceteris paribus.

TABLE 4 Results from pooled cross-sectional OLS estimation of model (1), depicting coefficient estimates (and p values), for 25,048 firm-year observations of Chinese-listed firms from 1998 to 2015[a]

	$TDEBT_{it}$	$SDEBT_{it}$	$LDEBT_{it}$
Intercept	0.168 (0.000)	0.430 (0.000)	−0.124 (0.000)
BIGit	−0.046 (0.000)	−0.031 (0.000)	−0.010 (0.001)
DOWNit	−0.033 (0.000)	−0.036 (0.000)	0.004 (0.000)
$TANG_{it}$	0.146 (0.000)	0.101 (0.000)	0.030 (0.000)
$SIZE_{it}$	0.040 (0.000)	0.017 (0.000)	0.017 (0.000)
MB_{it}	−0.294 (0.000)	−0.204 (0.000)	−0.085 (0.000)
ROA_{it}	−0.629 (0.000)	−0.503 (0.000)	−0.089 (0.000)
FCF_{it}	0.146 (0.000)	0.250 (0.000)	−0.100 (0.000)
$NDTS_{it}$	−0.983 (0.000)	−0.805 (0.000)	−0.176 (0.005)
VOL_{it}	0.134 (0.000)	0.121 (0.000)	0.012 (0.001)
TAX_{it}	0.043 (0.000)	0.058 (0.000)	−0.017 (0.000)
CAL_{it}	−0.315 (0.000)	−0.236 (0.000)	−0.072 (0.000)
IND_k	controlled	controlled	controlled
N	25,048	25,048	25,048
Adjusted R^2	0.411	0.284	0.305
F statistic[b]	793.79	451.43	501.64

[a]Coefficient *p* values are two-tailed against the null that the coefficient value = 0.

[b] *F* statistics are significant at 0.01 or better.

$$DEBT_{it} = \beta_0 + \beta_1 BIG_{it} + \beta_2 DOWN_{it} + \beta_3 TANG_{it} + \beta_4 SIZE_{it} + \beta_5 MB_{it} + \beta_6 ROA_{it} + \beta_7 FCF_{it} + \beta_8 NDTS_{it} + \beta_9 VOL_{it} + \beta_{10} TAX_{it} + \beta_{11} CAL_{it} + \sum_{k=1}^{K} \beta_{11+k} IND_k + \varepsilon_{it}.$$

Note. BIG_{it}: the percentage ownership of the largest shareholder (generally the State) of firm i in year t; CAL_{it}: current assets/current liabilities; $DEBT_{it}$: dependent variable: $TDEBT_{it}$, total debt ratio, total liabilities/total assets of firm i in year t; $SDEBT_{it}$, short-term debt ratio, short-term liabilities/total assets; or $LDEBT_{it}$, long-term debt ratio, long-term liabilities/total assets; $DOWN_{it}$: a qualitative (1, 0) variable that is equal to 1 if the GDP growth rate is lower compared with the previous year; FCF_{it}: free cash flow/total assets; IND_k: qualitative variables to control for (K = 11) industries; MB_{it}: the market-to-book ratio; $NDTS_{it}$: nondebt tax shield (accumulated depreciation + amortization)/total assets; ROA_{it}: net income/total assets; $SIZE_{it}$: the natural log of total assets; $TANG_{it}$: (fixed assets + inventories)/total assets; TAX_{it}: corporate tax rate; VOL_{it}: volatility (3-year moving average of standard deviation of net income/total assets).

Nondebt tax shields are found to be negatively associated with leverage, as expected. We find that the corporate tax rate (TAX) is positively associated with total debt and short-term debt but is negatively associated with long-term debt. The significant decline in long-term debt financing as TAX increases is possibly due to the difficulty of adjusting long-term debt contracts optimally in China, consistent with the trade-off theory and claims from previous research of imperfections in the Chinese bond market.

Growth prospects (MB) and profitability (ROA) are negatively associated with debt, conforming to the pecking order theory that growing firms resort primarily to internally generated funds to fulfil their financing needs. Our dependent variables are positively associated with FCF, except for long-term debt, suggesting that firms with greater liquidity choose to reduce noncurrent debt commitments. Similarly, the current ratio (CAL) is negatively associated with our debt variables. Income volatility (VOL) is found to be positively associated with leverage, consistent with the trade-off and pecking order theories.

To distinguish between debt levels of State-controlled firms and entrepreneur-controlled firms during periods of diminished economic growth, our *Q3*, we add a qualitative variable (GOV) that equals 1 if the firm is controlled by government departments and/or SOEs; if the firm is not State-controlled, the variable equals 0. Similarly, ENT (= 1 − GOV) represents sample firms controlled by entrepreneurs. We also include interaction terms BIG*ENT*DOWN and BIG*GOV*DOWN, because, for example, BIG*GOV captures the percentage ownership of State-controlled firms, and the coefficient on BIG*GOV*DOWN will show the cross-sectional change in the debt ratios from different levels of State ownership during periods of decreased economic growth. Other variables are as previously defined. This model is

$$\begin{aligned} DEBT_{it} = {} & \beta_0 + \beta_1 DOWN_{it} + \beta_2 BIG_{it}{*}GOV_{it} \\ & + \beta_3 BIG_{it}{*}ENT_{it} + \beta_4 BIG_{it}{*}GOV_{it}{*}DOWN_{it} \\ & + \beta_5 BIG_{it}{*}ENT_{it}{*}DOWN_{it} + \beta_6 TANG_{it} \\ & + \beta_7 SIZE_{it} + \beta_8 MB_{it} + \beta_9 ROA_{it} + \beta_{10} FCF_{it} \\ & + \beta_{11} NDTS_{it} + \beta_{12} VOL_{it} + \beta_{13} TAX_{it} \\ & + \beta_{14} CAL_{it} + \sum_{k=1}^{K} \beta_{14+k} IND_k + \varepsilon_{it}. \end{aligned} \quad (2)$$

In order to address our *Q3*, we provide the following (alternative) hypotheses:

> **H3a.** The coefficient on BIG*ENT*DOWN will be negative.
>
> **H3b.** The coefficient on BIG*GOV*DOWN will be positive.

Table 5 contains results from the estimation of model (2). The associations between our dependent variables and the control variables are qualitatively similar to the results detailed in Table 4. For example, we find that debt levels are decreasing in the ownership share of the controlling shareholders; the estimated coefficients on BIG*GOV and BIG*ENT are negative and significant for all debt variables (*p* values = 0.004 or better) except for the coefficient

[21]As noted in the discussion of Table 2, total debt is mostly short-term.

TABLE 5 Results from pooled cross-sectional OLS estimation of model (2), depicting coefficient estimates (and *p* values), for 24,220 firm-year observations of Chinese-listed firms from 1998 to 2015[a]

	$TDEBT_{it}$	$SDEBT_{it}$	$LDEBT_{it}$
Intercept	0.212 (0.000)	0.476 (0.000)	−0.130 (0.000)
$DOWN_{it}$	−0.049 (0.000)	−0.055 (0.000)	0.005 (0.067)
BIG_{it}*GOV_{it}	−0.086 (0.000)	−0.069 (0.000)	−0.014 (0.004)
BIG_{it}*ENT_{it}	−0.060 (0.000)	−0.054 (0.000)	0.001 (0.842)
BIG_{it}*GOV_{it}*$DOWN_{it}$	0.088 (0.000)	0.084 (0.000)	0.003 (0.617)
BIG_{it}*ENT_{it}*$DOWN_{it}$	−0.018 (0.242)	0.002 (0.920)	−0.016 (0.030)
$TANG_{it}$	0.145 (0.000)	0.100 (0.000)	0.031 (0.000)
$SIZE_{it}$	0.038 (0.000)	0.015 (0.000)	0.017 (0.000)
MB_{it}	−0.291 (0.000)	−0.199 (0.000)	−0.086 (0.000)
ROA_{it}	−0.611 (0.000)	−0.488 (0.000)	−0.089 (0.000)
FCF_{it}	0.151 (0.000)	0.256 (0.000)	−0.101 (0.000)
$NDTS_{it}$	−1.011 (0.000)	−0.844 (0.000)	−0.165 (0.010)
VOL_{it}	0.128 (0.000)	0.116 (0.000)	0.012 (0.001)
TAX_{it}	0.047 (0.000)	0.063 (0.000)	−0.018 (0.000)
CAL_{it}	−0.313 (0.000)	−0.236 (0.000)	−0.071 (0.000)
IND_k	controlled	controlled	controlled
N	24,220	24,220	24,220
Adjusted R^2	0.417	0.289	0.311
F statistic[b]	693.05	395.47	438.07

[a]Coefficient *p* values are two-tailed against the null that the coefficient value = 0.

[b] *F* statistics are significant at 0.01 or better.

$$DEBT_{it} = \beta_0 + \beta_1 DOWN_{it} + \beta_2 BIG_{it}{*}GOV_{it} + \beta_3 BIG_{it}{*}ENT_{it} + \beta_4 BIG_{it}{*}GOV_{it}{*}DOWN_{it} + \beta_5 BIG_{it}{*}ENT_{it}{*}DOWN_{it} + \beta_6 TANG_{it} + \beta_7 SIZE_{it} + \beta_8 MB_{it} + \beta_9 ROA_{it} + \beta_{10} FCF_{it} + \beta_{11} NDTS_{it} + \beta_{12} VOL_{it} + \beta_{13} TAX_{it} + \beta_{14} CAL_{it} + \sum_{k=1}^{K} \beta_{14+k} IND_k + \varepsilon_{it}.$$

Note. BIG_{it}: the percentage ownership of the largest shareholder (generally the State) of firm i in year t; CAL_{it}: current assets/current liabilities; $DEBT_{it}$: dependent variable: $TDEBT_{it}$, total debt ratio, total liabilities/total assets of firm i in year t; $SDEBT_{it}$, short-term debt ratio, short-term liabilities/total assets; or $LDEBT_{it}$, long-term debt ratio, long-term liabilities/total assets; $DOWN_{it}$: a qualitative (1, 0) variable that is equal to 1 if the GDP growth rate is lower compared with the previous year; ENT_{it}: 1–GOV_{it}, a qualitative (1, 0) variable where $ENT_{it} = 1$ indicates the firm is entrepreneur-controlled, and 0 otherwise; FCF_{it}: free cash flow/total assets; GOV_{it}: a qualitative (1, 0) variable that is equal to 1 if the firm is controlled by government departments and/or SOEs, else 0; IND_k: qualitative variables to control for (K = 11) industries; MB_{it}: the market-to-book ratio; $NDTS_{it}$: nondebt tax shield, (accumulated depreciation + amortization)/total assets; ROA_{it}: net income/total assets; $SIZE_{it}$: the natural log of total assets; $TANG_{it}$: (fixed assets + inventories)/total assets; TAX_{it}: corporate tax rate; VOL_{it}: volatility (3-year moving average of standard deviation of net income/total assets).

on BIG*ENT for LDEBT, which is insignificant.[21] These results are consistent with results we report in Table 4; in general, controlling shareholders, whether entrepreneurs or the State, prefer less debt. Additionally, as we reported in Table 4, debt levels of Chinese firms appear reduced during periods of lower economic growth. More importantly, debt tends to be somewhat reduced in times of less-robust growth for entrepreneur-controlled firms; the coefficient on BIG*ENT*DOWN is negative and significant in the model using the dependent variable LDEBT (p value = 0.03), although the coefficients are not significant for the other debt variables. However, the general tendency of leverage to decrease as economic growth slows is essentially reversed for firms under government control. Although our evidence indicates that debt financing for entrepreneur-controlled firms is either static or somewhat curtailed during economic slowdowns, State-controlled firms appear to increase leverage during economic slowdowns; the coefficients on BIG*GOV*DOWN are positive and significant for the SDEBT and TDEBT dependent variables. Our results contrast with those of Li et al. (2009), who show a significant positive association between long-term and total debt and State ownership, but not short-term debt, in that we find significant negative coefficients on BIG*GOV for all three models and a significant positive coefficient on BIG*GOV*DOWN for SDEBT.[22] The results support our H_{3a} and H_{3b} and are consistent with the implications of tunneling and propping for State-controlled firms.

5 | CONCLUSIONS

We investigate the influence of controlling shareholders and governmental ownership on the debt levels of Chinese firms in varying economic conditions. Consistent with previous research, we find that there appears to be significantly more short-term debt than long-term debt in China. We also find that as the percentage ownership of the largest shareholder increases, less debt (as a percentage of total assets) is generally preferred. Moreover, during economic slowdowns, firms tend to reduce their short-term debt levels, although long-term debt appears to increase.

Further tests reveal that entrepreneur-controlled firms reduce long-term debt during economic slowdowns, suggesting that they take into consideration the implications of changes in macroeconomic conditions for earnings and liquidity when making debt financing decisions. However, we also find that State-controlled firms in China tend to increase short-term borrowing during declines in macroeconomic conditions, consistent with the implications of Diamond (1991) and Sorge et al. (2016) and the construct of "tunneling and propping."

The implications of our study are best viewed as applying uniquely to China due to China's unique economic position as the country with the largest population, second-largest economy in terms of GDP, and largest State-controlled economy. We believe the capital structure of China remains an important research topic as the economy continues to grow.

[21]As noted in the discussion of Table 2, total debt is mostly short-term.

[22]As mentioned previously, Li et al. (2009) focus exclusively on unlisted firms.

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