



# 中国金融四十人论坛 CHINA FINANCE 40 FORUM

中国金融四十人论坛工作论文系列

CF40 Working Paper Series

NO. CF40WP2015005 (总第 5 期)

## Capital Structure Premium in Multinational SOEs: Evidence from China

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2015 年 09 月 01 日

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**Key words:** Capital Structure; Multinational SOE; National Strategy.

**JEL:** D22, G32, G38.

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We wish to thank the anonymous referee for his/ her insightful suggestion. All errors are ours.



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## 1. Introduction

Numerous studies have examined the relationship between multinational operation and capital structure. Existing evidence, however, is largely inconclusive due to different legal frameworks, institutional structures and developments of capital markets, etc. (Booth et al., 2001). Ownership, as suggested by many scholars, also plays an important role in this relationship. At least, there is sufficient inference regarding why multinational state-owned enterprises (SOEs) would have lower debt-equity ratios than domestic enterprises (DEs). It is believed that SOEs suffer from agency problems and insider control (Lin and Tan, 1999; Kornai et al., 2003), and are less efficient. Moreover, multinational operation would incur macro-economic risk, political risk and industrial risk (Burgman, 1996). Therefore, it seems reasonable to infer that multinational SOEs can bear lower debt-equity ratios.

However, China's current case is special. In this paper, we find that multinational SOEs have premium in debt ratio compared with DEs, which we define as multinational SOEs' "capital structure

premium”. Given the broadly recognized agency problem suffered by China’s SOEs, as well as China’s rapidly growing outward direct investment (ODI) since 2000, it is interesting and important to understand why China’s multinational SOEs enjoy such capital structure premium.

We note that China’s government intervention is playing a major role in SOEs’ decisions. Tong and Green (2005) find that corporate strategy is a significant determinant of capital structure. Hence, the state may regard some multinational SOEs as vehicles for overseas national strategies, such as acquisitions of natural resources and technologies. Since the operations of these SOEs reflect the state’s will, the state is more likely to support them. Therefore, due to national strategy, China’s multinational SOEs are likely to bear more risk and enjoy capital structure premium.

We use the data from China’s A-share listed companies to test whether national strategy plays the main role in explaining the capital structure premium of multinational SOEs. First, by controlling other well-recognized capital structure determinants, we find that multinational SOEs in China enjoy “capital structure premium”. We then investigate why the premium exists and identify national strategy as an important channel through which multinational SOEs’ debt ratios are raised. The state will support multinational SOEs with national strategies, making these SOEs to enjoy higher credit availability, and resulting in the capital structure premium.

The rest of the paper proceeds as follow. Section 2 reviews related literature. Section 3 introduces empirical method and data. Section 4 discusses relationship among multinational operation, ownership and capital structure, and finds that national strategy explains why multinational SOEs enjoy capital structure premium. Section 5 copes with endogeneity and robustness issues. Section 6 concludes.

## 2. Literature Review

Our study is closely related to the literature exploring the relationship between multinational operation and capital structure. On one hand, multinational operations can achieve diversification and reduce volatility of cash flow. Hence MNEs should have higher leverages than DEs, as argued by Chkir and Cosset (2001) and Mittoo and Zhang (2008). On the other hand, MNEs are faced with agency costs that may offset diversification benefits of multinational operations. Political risks and market frictions force MNEs to use more “real options” to prevent potential losses, thus causing higher agency costs. Political risks and foreign exchange risks also weaken their capability to sustain high leverages (Burgman, 1996; Brada et al., 2012). Therefore, how multinational operations affect capital structure depends on the relative importance of risks and benefits incurred by multinational operations. Booth et al. (2001) argues that the inconclusiveness is due to different legal frameworks, institutional structures and developments of capital markets.



The paper is also related to the study of ownership and capital structure. Agrawal and Nagarajan (1990) suggest that due to undiversifiable investment of human capital, management in control of the firm are inclined to eliminate leverage. This is supported by the empirical result provided by Jones and Mygind (2002). For China's case, it is of particular interest given the dominant role of the state in China's context. Results in Bai et al. (2004) have shed light on this topic. They find that state ownership is negatively correlated with firm value, which is correlated with capital structure. Li et al. (2009) argues that state ownership is positively associated with leverage and firms' access to long-term debt.

However, little research covers the relationship among multinational operation, ownership and capital structure. The reason for capital structure premium in China's multinational SOEs is also worth exploring. Therefore, we consider our contribution to the existing literature twofold: First, we incorporate ownership into the study of multinational capital structure and consider the interaction between multinational operation and ownership on the determination of capital structure. We find that, opposed to current study and inference, China's multinational SOEs enjoy capital structure premium. This pattern is new to existing literature and worth further exploring. Second, we analyze why China's multinational SOEs enjoy such premium. The role of national strategy is emphasized and we empirically investigate whether national strategy contributes to the capital structure premium of multinational SOEs.

### 3. Empirical Strategy

In this section, we first present econometric specifications and testable hypotheses, and then we describe our measures and data.

#### 3.1 Specifications and Hypotheses

Our starting point is the classical empirical analysis of capital structure determinants. The basic empirical model is given by:

$$Debt\ Ratio_{it} = \beta_0 + \delta \cdot X_{it} + \varepsilon_{it} \quad (1)$$

where  $Debt\ Ratio_{it}$  represents capital structure.  $X_{it}$  a vector of control variables.

The first step of our study is to examine the relationship among multinational operation, ownership and capital structure. We incorporate MNE, SOE as well as their interaction term into the empirical model, as given by Eq. (2):



$$Debt Ratio_{it} = \beta_0 + \beta_1 \cdot MNE_{it} \cdot SOE_{it} + \beta_2 \cdot MNE_{it} + \beta_3 \cdot SOE_{it} + \delta \cdot X_{it} + \varepsilon_{it} \quad (2)$$

In Eq. (2),  $\beta_1$  measures whether multinational SOEs have capital structure premium and is of our central interest.  $\beta_2$  measures the capital structure differential between MNEs and DEs and  $\beta_3$  measures the differential between SOEs and non-SOEs.

As discussed above, if China's multinational SOEs have capital structure premium, we will further explore whether national strategy plays a role in it. This is done by incorporating the dummy of national strategy and its interaction term with MNE and SOE as given by Eq. (3):

$$Debt Ratio_{it} = \beta_0 + \beta_1 \cdot SI_{it} \cdot MNE_{it} \cdot SOE_{it} + \beta_2 \cdot MNE_{it} \cdot SOE_{it} + \beta_3 \cdot SI_{it} \cdot SOE_{it} + \beta_4 \cdot MNE_{it} \cdot SI_{it} + \beta_5 \cdot MNE_{it} + \beta_6 \cdot SOE_{it} + \beta_7 \cdot SI_{it} + \delta \cdot X_{it} + \varepsilon_{it} \quad (3)$$

One can interpret positively significant  $\beta_1$  as evidence that a multinational SOE in strategic industries enjoy higher leverage. But we are also interested in whether this effect is economically significant to account for what we identify in equation (2), namely, the capital structure premium among multinational SOEs. Hence we also pay attention to the significance of  $\beta_2$  once the triple interaction term is included.

We then take a step further to investigate whether national strategy plays a dominant role in explaining the capital structure premium of multinational SOEs. This is done by testing the following two hypotheses.

**H<sub>1</sub>:** Multinational SOEs with national strategies have capital structure premium, compared with those without national strategies.

**H<sub>2</sub>:** Multinational SOEs without national strategies do not enjoy capital structure premium, compared with domestic SOEs.

In fact, multinational SOEs with national strategies would receive support from the state and should have higher leverages than the multinational SOEs without national strategies. In other words, multinational SOEs without national strategies would not receive support from the state and thus should not have a premium on leverages compared with other domestic SOEs. Moreover, if we take extra risks and costs incurred by multinational operations into account, multinational SOEs without national strategies should have lower debt-equity ratios than domestic SOEs. Therefore, if the two hypotheses above are valid, then the claim that national strategy plays a dominant role in explaining the capital structure premium is also validated.



Empirically, to test  $H_1$  is to test whether  $\beta_1 + \beta_3 + \beta_4 + \beta_7$  is significantly positive, and to test  $H_2$  is to test whether  $\beta_2 + \beta_5 - \alpha * (\beta_3 + \beta_7)$  is significantly negative.  $\alpha$  is the proportion of firms with national strategies in all domestic SOEs.

### 3.2 Measures and Data

We use data of China's A-listed companies in CSMAR Database. Capital structure is the ratio of debt to equity. We follow Burgman (1996) to investigate long-term debt-equity ratios. Book values of debt and equity are used to calculate the ratios.

As for the variable of multinational operation, Fatemi (1984) uses a company's foreign sales ratio to measure the degree of multinational operation. Burgman (1996) argue that such criteria cannot differentiate export sales from foreign sales. They suggest that foreign tax ratio should be used instead. However, as different countries have different income tax rates, the foreign tax ratio may have an underestimation of the degree of multinational operations when a firm operates from a country with a low income tax rate.

Based on the above concerns, we use the foreign sales ratio, with modifications, to differentiate between MNEs from DEs. Specifically, we use footnotes to financial statements to eliminate all the export sales. We set an "MNE" dummy to identify MNEs. If a firm has a foreign sales ratio greater than 10% that year, then it is defined as an MNE and its "MNE" equals 1. If a firm has a foreign sales ratio equal to or lower than 10% that year, then it is defined as a DE and its "MNE" equals 0.

Following Bai et al. (2004), we differentiate SOEs and non-SOEs by whether the firm is absolutely controlled by the state. We set a dummy "SOE". If the state and state-owned legal person hold more than 50% of the firm's equity, the firm is defined as an SOE and its "SOE" equals 1. Otherwise its "SOE" is set at 0.

Following previous theoretical and empirical studies regarding the determination of capital structure (Rajan and Zingales, 1995; Wald, 1999), we select several control variables that are widely considered important and have proved robust in the literature. "Profitability" is calculated as EBITDA over assets. According to the pecking order theory, profitability would decrease the debt-equity ratio. "Non-debt tax shield" is calculated using the sum of depreciation, amortization and deferred tax assets over total assets. These items would decrease EBIT but not lead to cash outflow, acting as another tax shield. "M/B ratio" is calculated by a firm's market value over its book value, representing more investment and growth opportunities. Debtors are unwilling to lend to firms with a high M/B ratio due to the potential underinvestment, therefore decreasing firm's debt-equity ratio. We use a logarithm of revenue as a "size" indicator. Larger firms are more able to diversify and thus have higher debt ratio. Finally, firms with a higher "fixed asset ratio" (fixed assets over total assets) would have higher leverage as fixed asset can

serve as collateral and reduce default risks.

The sample period is from 2003 to 2010. The industry “finance and insurance” is excluded as firms in the finance and insurance industries have significantly different capital structure characteristics from other industries. We also drop observations that have missing values in dependent variables, explanatory variables, or control variables. Observations with negative sales, assets, or foreign sales ratios are also excluded. These filtering procedures leave us with a sample of 9766. Table 1 provides summary statistics of dependent variable, explanatory variable and control variables.

**Table 1 Summary Statistics**

Variable	Mean	Median	St. Dev.	Min	Max
Long-term debt-equity ratio	0.126	0.055	0.163	0	0.986
MNE	0.154	0	0.361	0	1
SOE	0.208	0	0.406	0	1
Profitability	0.066	0.072	0.480	-45.821	0.867
Non-debt tax shield	0.049	0.029	1.621	-0.683	160.134
M/B	1.977	1.278	17.968	0.401	1661.130
Size	20.828	20.817	1.476	10.772	28.280
Fixed asset ratio	0.295	0.267	0.184	0	0.960

## 4. Estimation Results

### 4.1 Multinational Operation, Ownership and Capital Structure

Firstly, we explore the relationship among multinational operation, ownership and capital structure. As is shown in Table 2, MNE’s coefficient is significantly negative, suggesting that MNEs have lower debt-equity ratios than DEs. Extra political risks and foreign exchange risks outweigh diversification benefits, weakening firms’ capability to sustain high debt-equity ratios (Fatemi, 1988; Burgman, 1996). SOE’s coefficient is negatively significant, confirming that SOEs are more subject to agency problem and thus cannot bear high debt ratios.

We are particularly interested in the coefficient of the interaction term, which turn out to be positive and significant, suggesting that multinational SOEs have a premium on their debt-equity ratios. We define this premium as multinational SOEs’ “capital structure premium” henceforth. Thus under different ownership structures, patterns of capital structure differentials between MNEs and DEs are

heterogeneous.

Coefficients of control variables are consistent with theoretical predictions. Profitability and M/B ratio are negatively correlated with the debt-equity ratio, while non-debt tax shield, size, and fixed asset ratio are positively correlated with the ratio.

**Table 2 Multinational Operation, Ownership and Capital Structure**

Dependent Variable: Debt-Equity Ratio	(1)	(2)	(3)	(4)
MNE×SOE	0.0422 <sup>***</sup> (3.34)	0.0591 <sup>***</sup> (5.39)	0.0293 <sup>**</sup> (2.27)	0.0304 <sup>**</sup> (2.37)
MNE	-0.00756 <sup>*</sup> (-1.76)	-0.0174 <sup>***</sup> (-4.38)	-0.00832 (-1.49)	-0.0206 <sup>**</sup> (-2.31)
SOE	0.000639 (0.14)	-0.0172 <sup>***</sup> (-4.06)	-0.00875 (-1.52)	-0.0125 <sup>**</sup> (-2.24)
Controls	No	Yes	No	Yes
Individual effects	No	No	Yes	Yes
Year effects	Yes	Yes	Yes	Yes
Sample size	9766	9766	9766	9766
Adjusted R-Square	0.141	0.226	0.136	0.218

Note: Numbers in parentheses are robust t statistics. \*, \*\*, and \*\*\* indicates significance at 10%, 5%, and 1%, respectively. Standard errors are clustered within firms henceforth.

## 4.2 National Strategy

Multinational SOEs enjoy capital structure premium, while multinational non-SOEs have lower leverages than domestic non-SOEs. As we have discussed above, one potential explanation to such pattern is that multinational SOEs are often with important national strategies, such as searching for natural resources or strategic assets (Huang and Wang, 2011). The importance of national strategies entitles more preferential policies, such as low-cost financing. Thus the extra risks and costs incurred by multinational operations are partly or even completely offset, making multinational SOEs' leverages equal to or even higher than those of domestic SOEs.<sup>1</sup>

Therefore, multinational SOEs with national strategies would receive support from the state and are supposed to have capital structure premium, compared with the multinational SOEs

<sup>1</sup> A similar argument is raised by Moody's regarding its rating practice for a "government-related issuer," See "The Application of Joint Default Analysis to Government Related Issuers" published in April 2005.



without national strategies. Moreover, since extra risks and costs are incurred in multinational operations, multinational SOEs without national strategies would have lower debt-equity ratios than domestic SOEs. The above arguments are summarized as the hypotheses in Section 3.1.

To test the hypotheses, we need to identify which firms have national strategies. Intuitively, some industries are of great strategic importance and are thus called strategic industries. The state has its goals in strategic industries and achieves its goals through SOEs in certain industries. Thus, multinational SOEs in strategic industries become vehicles to achieve national strategic goals. Hence we identify multinational SOEs with national strategies as multinational SOEs in strategic industries.

Next we formally define strategic industries. The definition is based on Chinese literature discussing the classification of strategic and non-strategic industries in China. We define the intersection of strategic industries chosen by related literature as China's strategic industries, which includes coal, petroleum and gas, raw materials, textiles, electronic manufacturing, etc. We use the two-digit industrial codes of the China Securities Regulatory Commission (CSRC) to define strategic industries.<sup>2</sup>

The empirical results for Eq. (3) are shown in Table 3. Estimations of  $\beta_1$  are all significantly positive at the 5% level, straightforward evidence that multinational SOEs in strategic industries do enjoy capital structure premium. Meanwhile, the significance of  $\beta_2$  is totally absorbed by the inclusion of the triple interaction term, indicating that multinational SOEs in non-strategic industries do not enjoy such premium. Lower debt ratios of MNEs and SOEs still preserve since coefficients corresponding to these two are negatively significant.

We further investigate the role of national strategy by testing  $H_1$  and  $H_2$  using Wald tests. In all the estimations,  $\beta_1 + \beta_3 + \beta_4 + \beta_7$  are all significantly positive, implying that multinational SOEs in strategic industries have higher debt-equity ratios compared with multinational SOEs in non-strategic industries. Moreover,  $\beta_2 + \beta_5 - \alpha * (\beta_3 + \beta_7)$  are all negative, implying that multinational SOEs in non-strategic industries do have equivalent or even lower debt-equity ratios than domestic SOEs. The results imply that the capital structure premium among multinational SOEs is mainly driven by those multinational SOEs in strategic industries.

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<sup>2</sup>The detailed complete definition is available upon request.



**Table 3 National Strategy and Capital Structure**

Dependent Variable: Debt-Equity Ratio	(1)	(2)	(3)	(4)
SI×MNE×SOE	0.0510** (2.16)	0.0458** (2.17)	0.0514** (2.18)	0.0493** (2.16)
MNE×SOE	-0.000461 (-0.03)	0.0211 (1.28)	-0.0106 (-0.58)	-0.00819 (-0.45)
MNE	-0.00716 (-0.90)	-0.0104 (-1.40)	-0.00683 (-0.74)	-0.0204* (-1.87)
SOE	-0.0238*** (-3.52)	-0.0372*** (-5.60)	-0.0235** (-2.46)	-0.0286*** (-3.06)
Controls	No	Yes	No	Yes
Individual effects	No	No	Yes	Yes
Year effects	Yes	Yes	Yes	Yes
Sample size	9766	9766	9766	9766
Adjusted R-Square	0.144	0.229	0.139	0.221
H <sub>0</sub> : $\beta_1 + \beta_3 + \beta_4 + \beta_7 = 0$	0.0897*** (4.33)	0.0737*** (4.04)	0.0738*** (2.95)	0.0706*** (2.98)
H <sub>0</sub> : $\beta_2 + \beta_5 - \alpha * (\beta_3 + \beta_7) = 0$	-0.0296* (-1.94)	-0.0109 (-0.77)	-0.0312 (-1.60)	-0.0404* (-1.89)

Note:  $\alpha$  is the proportion of firms that are in strategic industries in all the domestic SOEs. Estimation of other interaction terms and dummies are abstracted.

The results support the claim that national strategy is an important channel through which capital structure premium is introduced. Multinational SOEs with national strategy have higher leverages than multinational SOEs without national strategy. Multinational SOEs without national strategy have equivalent or even lower leverages than domestic SOEs. All these findings imply that the presence of capital structure premium is mainly driven by multinational SOEs with national strategy.

## 5. Endogeneity and Robustness

In this section we deal with the possible endogeneity concern and perform several robustness

tests to justify the validity of our findings.

### 5.1 Endogeneity

One may worry that reverse causality exists between capital structure and the variable in interest: Whether a firm goes multinational or not. It is possible that capital structure captures financial constraint of a firm and less financially constrained firm chooses to become a multinational firm. We implement instrumental variable (IV) estimation to mitigate this concern. We choose whether a firm locates in a province that shares a border with other countries as the IV for MNE variable.

First, a province sharing a border with other countries is supposed to have more connections with other countries in terms of business, cultures and other activities. As a result, *ceteris paribus*, a firm locates in such province will tend to expand business oversea, and is more likely to become multinational than a firm in inner provinces. This guarantees the relevance restriction for our IV. We construct a dummy variable  $Border_{it} = 0$  if the firm locates in inner provinces and  $Border_{it} = 1$  otherwise.

Second, current debt ratio cannot affect firm's location decision. However, provinces near border might be more open and firms there may face less credit constraint due to more favorable economic condition and have higher leverages. To control this potential channel, we add the provinces' loan over GDP as a control variable to proxy local credit condition in each province. Therefore firm location should affect firm's capital structure only through multinational operations.

We treat  $MNE_{it}$ ,  $MNE_{it} \cdot SOE_{it}$ ,  $MNE_{it} \cdot SI_{it}$  and  $SI_{it} \cdot MNE_{it} \cdot SOE_{it}$  as endogenous and use  $Border_{it}$ ,  $Border_{it} \cdot SOE_{it}$ ,  $Border_{it} \cdot SI_{it}$ ,  $SI_{it} \cdot Border_{it} \cdot SOE_{it}$  as corresponding IVs. As  $Border_{it}$  is invariant across time, to guarantee enough variations so that 2SLS estimation can be implemented, we 1) interact all the IVs with year dummies (except for  $SI_{it} \cdot Border_{it} \cdot SOE_{it}$ , to avoid the problem of multi-co-linearity) and use these interaction terms as IVs and 2) use random effect (RE) to estimate the 2SLS regressions. The results are presented in Table 4.

**Table 4 IV Estimation**

Dependent Variable:	(1)	(2)	(3)	(4)
Debt-Equity Ratio				
SI×MNE×SOE			0.631 <sup>+</sup>	0.643 <sup>+</sup>
			(1.57)	(1.58)



MNE×SOE	0.270**	0.272**	-0.145	-0.147
	(2.00)	(2.04)	(-0.47)	(-0.47)
MNE	-0.369***	-0.366***	-0.428**	-0.438**
	(-3.65)	(-3.60)	(-2.14)	(-2.19)
Loan over GDP ratio		-0.00454		-0.00342
		(-0.50)		(-0.42)
Controls	Yes	Yes	Yes	Yes
Individual effects	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes
Sample size	9723	9723	9723	9723
Adjusted R-Square		0.064		0.074
H <sub>0</sub> :	N.A	N.A	0.7329**	0.7497**
$\beta_1 + \beta_3 + \beta_4 + \beta_7 = 0$			(2.51)	(2.52)
H <sub>0</sub> :	N.A	N.A	-0.5333**	-0.5436**
$\beta_2 + \beta_5 - \alpha * (\beta_3 + \beta_7) = 0$			(-2.37)	(-2.37)
Hansen-J stat	10.405	11.57	21.116	21.949
Kleibergen-Paap rank Wald F	3.280	3.155	1.444	1.441
Kleibergen-Paap rank LM	52.228***	50.253***	36.120**	36.022**

Note: “+” indicates significance at 12%’s level.

Since specification tests of 2SLS estimation are currently not available for RE estimation, we also run the same 2SLS regressions using OLS method and obtain results of specification tests from the OLS estimation. The rationale is that under the assumption that allows for random effect estimation, OLS and RE should produce quantitatively similar results. Thus results in the last three rows are obtained via OLS estimation, while the rest are obtained using RE estimation.

The over-identification test first demonstrates that our IVs meet the exclusion restriction: In all specifications Hansen-J statistics are insignificant at 10%’s level. For the relevance restriction, since the critical values of Kleibergen-Paap rank Wald F statistic are not available, we cannot directly perform weak IV tests. We thus rely on the Kleibergen-Paap rank LM statistics to perform under-identification tests. The results show that the null hypotheses of under-identification are rejected in all specifications. These results justify the validity of our IVs statistically.

We report the results that exclude and include local credit environment as control respectively, and focus on results in column (2) and (4). Our results confirm the previous findings that MNEs and SOEs have lower debt-equity ratios. Moreover, when considering the effect of different



ownerships, capital structure premium among multinational SOEs still preserves, as what we have found in section 4.

Now turn to the effect of strategic industry.  $\beta_1$  is marginally significant and positive while  $\beta_2$  remains insignificant, so multinational SOEs in strategic industries enjoy capital structure premium and the effect of the interaction term  $MNE_{it} \cdot SOE_{it}$  is totally absorbed, consistent with the previous results. More importantly, the Wald tests show consistent results as previous analysis: multinational SOEs in strategic industries have higher debt ratios than their counterparties in non-strategic industries ( $H_1$ ), while the latter have lower debt ratios than domestic SOEs ( $H_2$ ). Thus the capital structure premium is unique to multinational SOEs with national strategy.

## 5.2 Different Definitions of MNEs

To avoid measurement error, we implement three other standards to identify MNEs and DEs: 1) foreign sales ratios equal to or above 15% as MNEs and below 15% as DEs, 2) foreign sales ratios equal to or above 10% as MNEs and below 1% as DEs, and 3) foreign sales ratios equal to or above 15% as MNEs and below 1% as DEs. Moreover, there might not be a discontinuous relationship between foreign sales ratio and capital structure. Therefore, we also consider the foreign sales ratio as explanatory variable. We replicate benchmark estimations (Equations 2 and 3) using these three standards, and the main results do not change. We present the result when we use standard 1) to define MNEs in column 1 and 2 of Table 5 for illustration.

**Table 5 Robustness**

Dependent Variable:	(1)	(2)	(3)	(4)	(5)
Debt-Equity Ratio	$\geq 15\%$ as MNE, $< 15\%$ as DE	$\geq 15\%$ as MNE, $< 15\%$ as DE	Market Value 1	Market Value 2	Asset as Firm Size
SI×MNE×SOE		0.0541** (2.24)	0.0295* (1.79)	0.0284* (1.77)	0.0392* (1.88)
MNE×SOE	0.0293** (2.07)	-0.0128 (-0.68)	0.00190 (0.16)	0.00150 (0.13)	0.00112 (0.07)
MNE	-0.0292*** (-3.20)	-0.0305*** (-2.77)	-0.0156** (-2.34)	-0.0157** (-2.36)	-0.0192* (-1.83)
Controls	Yes	Yes	Yes	Yes	Yes



Individual effects	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes
Sample size	9766	9766	8796	8875	9766
Adjusted R-Square	0.219	0.222	0.327	0.328	0.277
H <sub>0</sub> :		0.0782 <sup>***</sup>	0.0368 <sup>**</sup>	0.0359 <sup>**</sup>	0.0558 <sup>***</sup>
$\beta_1 + \beta_3 + \beta_4 + \beta_7 = 0$		(3.11)	(2.27)	(2.27)	(2.65)
H <sub>0</sub> :		-0.0558 <sup>**</sup>	-0.0198	-0.0197	-0.0274
$\beta_2 + \beta_5 - \alpha * (\beta_3 + \beta_7)$		(-2.53)	(-1.49)	(-1.50)	(-1.43)
= 0					

Note: Column (1) and (2) defines firms with foreign sales ratios  $\geq 15\%$  as MNEs,  $< 15\%$  as DEs. We achieve consistent results, including estimation results of equation (2), when we use all four definitions of MNEs under market-value debt-equity ratios and asset-based size measures, respectively. Results are available upon request.

### 5.3 Market Value of Equity

Generally equity value can be measured either in book value or in market value. Here we also use the market value of equity to calculate capital structures. Considering China's case, we use the following two market values of equity:

- 1) Market value 1 = # of tradable shares  $\times$  Closing price of the last transaction day of the year + # of nontradable shares  $\times$  Net assets per share
- 2) Market value 2 = # of tradable shares  $\times$  Average of the closing prices of the last 10 transaction days of the year + # of nontradable shares  $\times$  Net assets per share

The Market value 2 is used to avoid the pricing errors caused by dramatic volatility of stock prices at the end of the year. We use these two equity values to calculate the debt-equity ratios and then replicate the estimation of equation (3). As can be seen in column 3 and 4 of Table 5, the results do not change significantly either.

### 5.4 Different Definition of Firm Size

Firm size can be measured using sales or assets. Sales are more frequently used because it is widely recognized that sales statistics are more reliable. For robustness, we also use a logarithm value of total assets as a measure of size. As is presented in column 5 of Table 5, the main

findings do not change either.

## 6. Concluding Remarks

We use data of China's A-share companies to investigate the relationships between multinational operations, ownership and corporate capital structures. We find that:

First, although multinational operations and state ownership decreases firm's debt ratio, the combination of these two yields another new pattern: Chinese multinational SOEs are found to enjoy capital structure premium. This finding contrasts the previous literature and we proceed to investigate why such premium is observed.

Second, we find that national strategy is an important channel through which multinational SOEs' debt ratio is raised, thus generating the observed "capital structure premium". Multinational SOEs with national strategy enjoy the state's support and easier credit, and thus can sustain higher debt ratio. More importantly, this effect is absent among multinational SOEs without national strategy. So the capital structure premium among multinational SOEs is mainly driven by those firms with national strategy. We also deal with endogeneity. Our results are robust to the definition of MNEs and DEs, the measures of capital structures, and firm size.

A direct implication of this paper is that, overall, China's multinational firms have encountered operational risks, which offset the diversification benefits, resulting in lower debt-equity ratios. Although capital structure premium among multinational SOEs is presented, we demonstrate that in fact only multinational SOEs with national strategy can sustain higher debt-equity ratios due to its ownership and strategic background. In other words, it is not multinational SOEs' own operational capacity, but their identities that help them to overcome overseas operational risks. Once their identities are removed, they may no longer enjoy the high debt capacity because they will suffer from the same risk as usual MNEs. Therefore, in order for China's firms to be more competitive when "going global," risk control should still be a priority.



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