

# Exploring the Relationship Among Financial Marketization, Firm Ownership, and Corporate Venturing in China: the Moderating Effect of Firm Ownership

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## ABSTRACT

Drawing upon the institution-based view, this study examines how the level of regional financial marketization and firm ownership affects corporate venturing activities. Employing a panel dataset from China's pharmaceutical industry, we find that firms in regions with a higher level of financial marketization are more likely to engage in corporate venturing activities than firms operating in less marketized settings. Due to China's socialist legacy, state-owned enterprises are more likely to respond to and benefit from institutional transitions than privately-owned enterprises. Among all the state-owned enterprises, those affiliated to local governments are more likely to respond to and benefit from institutional transitions than those affiliated to higher government level or those that are marketized. Implications of these findings are discussed.

**Keywords:** *institution-based view, financial marketization, firm ownership, corporate venturing, state-owned enterprises (SOEs), privately-owned enterprises (POEs)*

## I. INTRODUCTION

In the context of emergent economies, regional institutional differences play an important role. Looking at Brazil, Russia, India, and China (BRIC), all four of these leading emergent economies belong to the world's largest countries in terms of size and feature considerable institutional diversity that seems to be necessary to govern large countries. The BRIC countries have prototype character for the rest of the undeveloped and developing world.

Little attention has been paid to the effect of institutions in the intra-country context. This observation is surprising as prior research has highlighted the importance of institutions for business practices and competitive advantage [1]. Indeed, institutions are an important source of competitive heterogeneity in the inter-country context [2]. Institutions have been used to explain differences of growth and welfare between countries [3] and institutions have been investigated on their effects on firm strategies and performance [4]. Little is known about the effect of within-country between-region

institutional differences on firm strategies and performance.

In this study, we address this gap by studying the effects of between-region institutional differences on firms' corporate venturing activities [5]. Corporate venturing is regarded as an effective way of sourcing external technology, revitalizing obsolete firm operations, building new capabilities, and achieving strategic renewal [6], [7], [8], and has attracted much attention from both business and academia over the past decades [9], [10].

We pay particular attention to ownership issues that determine the institutional setting companies are operating in. In emerging economies, ownership type is one of the most critical characteristics of firm legitimacy [11] and determines to a large extent the set of formal institutions under which the firms operates [12]. In large and complex emerging economies such as China, state-owned enterprises (SOEs) affiliated to the central government, local government (provincial and municipal government), or marketized SOEs are constrained by somewhat varied institutional logics [13]. The substantial heterogeneity that exists in cross-regional institutional settings (e.g., sub-national differences of financial institution), coupled with the diverse ownership identities (e.g., private-owned and

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various state owned) for firms operating in China, provide us with ample opportunities to examine the issues of institutional transition, ownership identities and firm corporate venturing strategy. China as a context is not only suitable because of the particular role of the state. By today, China is largest (informal and formal) economy in the world. It has been suggested as a model for other developing and developed countries, and is also the long-term growth leader of those four countries (BRIC) that have shown the world's highest growth rates over the last two decades. We argue that the development of regional financial marketization in China fuels corporate venturing activities by firms and the privileged SOEs are more likely than privately-owned enterprises (POEs) to respond to regional financial marketization and to translate it into corporate venturing activities. Moreover, SOEs affiliated to local governments benefit more from the development of regional institutions than other types of SOEs due to fiscal federalism in China. Employing a panel dataset from China's pharmaceutical industry, these arguments are largely supported empirically.

In doing so, we make at least two theoretical contributions. First, we extend the institution-based view of strategy to the field of corporate venturing and demonstrate that, in addition to the task environment level and organizational level antecedents, market supporting institutions especially regional financial institutions are critical driving forces for firms' corporate venturing activities. Second, we reveal the moderating effects of ownership on the relationship between institution and corporate venturing activities, indicating that firm ownership is a critical variable determining when institutions matter. Such finding responds to Powell (1996) who called for more work to tackle more difficult questions of how and when institutions matter so as to advance institutional theory.

## II. THEORY AND HYPOTHESIS

### A. Financial marketization and corporate venturing

Corporate venturing refers to strategic management decisions for setting up new businesses within or outside the incumbent organizations [14] and involves organizational systems, processes and practices that create business in existing or new fields, markets or industries [6], [14]. The institution-based view suggests, a firm's strategic choice is not only constrained by industrial dynamics and firm resources, but also influenced by both formal and informal institutions—the "rules of the game" of the society [1], [15]. Prior research claims that innovation and entrepreneurship are encouraged in a developed financial market [1], [16]. Therefore, the financial institutions are relevant to the occurrence of corporate venturing. As a formal institution, the marketization

level of financial sector determines to a large extent the amount of financial providers and intensity of rivalry among them within a specific region, and in turn, stipulates the availability and cost of external financing for firms. Since financial resources are indispensable in implementing corporate venturing strategy [16], the marketization level of financial sector limits the level of corporate venturing activities by firms. Specifically, within regions with a higher level of financial marketization and more opening-up of the financial sector, higher level of financial marketization and higher rivalry between financial providers lead to a higher availability of financial resources and lower cost of using external financing through the market. Hence, the corporate venturing activities by firms within the region are more likely to occur due to lower transaction costs. In contrast, lower level of financial marketization leads to more limited access to external financial resources and higher financing costs, i.e., higher transaction costs, which holds up corporate venturing activities. Therefore, we predict:

H1: Firms within regions with more marketized financial institutions are more likely to engage in corporate venturing activities.

### B. The moderating role of firm ownership: who will benefit more

In explaining various strategic choices by firms, the institution-based view treats institutions as independent variables and focuses on the interaction between institutions and organizations [15]. In other words, the institution-based view claims that the strategic choice is the outcome of the interaction of institutions and organizations [15], [18]. In emerging economies, firm ownership as a key construct underlying different institutional arrangements has become an increasingly important issue in emerging markets [11]. Firm ownership is not only a concise representation of firm legitimacy but also influences the extent to which a firm is affected by formal institutions [12]. Accordingly, we consider it as a critical contingent variable and examine how the relationship between financial marketization level and corporate venturing varies across firm ownership types.

1) *State-owned firms versus, privately-owned firms:* Though firms in general benefit from the marketization of the financial sector in terms of lower transaction costs of financing, firms with different ownership types may still receive varied treatments and therefore benefit distinctively for two reasons. On one hand, firms with government affiliations (i.e., SOEs) are deemed to be more reliable and legitimate than those without it (i.e., POEs) due to the socialist legacy, which lower the transaction costs on the part of SOEs to demonstrate their credibility to the banking system. On the other

hand, the banking system in China is largely under the control of governments and has long-term cooperation with SOEs in the history, which reduces the information asymmetry between the banking system and SOEs, and in turn, lower the transaction costs on the part of SOEs to get access to financial resources.

Prior to the reform since 1978, banks in China existed as state agencies and allocated funds to SOEs with a transfer system of credit controlled by the central government [19]. In 1978, Chinese government started to implement financial and banking system transformations — four specialized banks (i.e., the Agricultural Bank, the Industrial and Commercial Bank, the Construction Bank and the Bank of China) were established as financial intermediaries. However, these banks still remained government agencies and bias in favor of SOEs that received a disproportionate share of bank finance [20]. As Keister (2004) observed, the SOEs in China relied almost exclusively on bank financing [18]. While the four specialized banks were totally transformed into commercial banks in 1998 and became independent in their loan decisions, the SOEs still have advantages in obtaining the financial resource from these banks due to their long-term co-operations in the history. In contrast, POEs were shut off from the formal sources of finance [21] until 1998 when China's banking system was allowed to grant loans to POEs. To gain financial resources, POEs were forced to resort to informal financing (such as private lending and "underground banks") and/or rely upon their own financial slack [22].

In sum, due to the socialist legacy and historical cooperations between the banking system and the SOEs in China, the SOEs are more likely to be benefited from institutional transitions by way of obtaining external financing with lower transaction costs than POEs in China. The favorite financial treatment (more availability and lower financing costs) facilitates the SOEs to more actively engage in corporate venturing activities than POEs. Accordingly, we predict:

H2: The impact of financial marketization level on corporate venturing by firms is stronger for SOEs than for POEs.

2) *Central government affiliated, local government affiliated and marketized SOEs*: Moreover, three categories of SOE ownership exist in China — firms that are affiliated to the central government, local government (provincial and municipal government), and marketized SOEs [13]. Central government affiliated SOEs are those under the supervision and administration of state council, national state-owned assets management bureau, national state-owned assets investment company and various ministries of central government. Local government affiliated SOEs refers to those are owned by provincial or municipal

government, local state-owned assets management bureau as well as local state-owned assets investment company. Marketized SOEs refer to those who are owned by the government but are not constrained by the social objectives that other SOEs bear. They are comparatively free of government intervention and independent in strategic choices [13]. Since they do not receive financial aid from governments, they have to seek profits by themselves and be responsible for their own gains or losses [23].

We argue SOEs affiliated to local government are most likely to enjoy the financial institution transition in terms of more availability and lower costs of financing. One feature of China's current fiscal system is "federalism" in which local governments have the right to levy taxes and get the retained earnings from their controlled SOEs. To obtain more tax and retained earnings, local governments have incentives to assist SOEs affiliated to them by offering endorsement for loans or "persuading" banks to provide financial resources. Indeed, as the regulatory authorities, local governments have strong political influence over banks within their administrative regime [24] and are able to direct bank financial resources to their directly controlled SOEs. These efforts from local governments facilitate local government affiliated SOEs to obtain financing with lower transaction costs and in turn, enable them to more actively engage in corporate venturing activities than other types of SOEs. Therefore, we predict that:

H3: The impact of financial marketization level on corporate venturing by firms is stronger for local government affiliated SOEs than for central government affiliated SOEs or marketized SOEs.

### III. METHODS

In order to mitigate the threats of unobservable heterogeneity as well as confounding effects of industry-level variables, we choose firms from a single industry to increase the internal validity. Our sample for this study consists of listed firms from the pharmaceutical industry in China. As a function of China's rapid economic growth, the country's pharmaceutical industry has also experienced a surge over the past decade. From 2001 to 2008, the Chinese pharmaceutical industry grew at a compounded annual growth rate (CAGR) of 20% [25]. It is among the first attempts to implement the opening-up policy and attracted foreign direct investments from multinational firms since 1978. Currently, top 20 pharmaceutical multinational firms are setting up their joint ventures or subsidiaries in China, resulting in increased domestic competition in this industry. To gain competitive advantages, domestic pharmaceutical firms in particular listed pharmaceutical firms in China implemented corporate venturing strategies by setting up new

production lines or investing in new drug development projects initiated by research institutions [26] as well as acquiring external pharmaceutical firms. For instance, Renhe Pharmacy (stock code: 000650) announced recently that it had acquired 100% stock share of the Jiangxi Yuxin Pharmaceutical Limited through one of its subsidiaries. The widely spread corporate venturing activities in China's pharmaceutical industry provide us with an ideal setting to investigate the corporate venturing phenomenon.

Moreover, as the largest emerging economy, China features significant regional differences in term of the cultural and social background, economic development as well as institutional framework [27], [28]. In particular, the institutional framework development is uneven among regions in China due to heterogeneous historical, social and economic backgrounds. Meanwhile, as a transition economy as well, China still has various types of SOEs in parallel with the rapid development of domestic private firms. Therefore, using Chinese firms located in various regions with heterogeneous institutional backgrounds and highly diverse ownership types is appropriate for examining the effects of institutions, firm ownership types and their interactions on corporate venturing.

We initially find 84 firms in the pharmaceutical industry that are listed on the Shanghai and Shenzhen stock exchange according to the industry category issued by the China Securities Regulatory Commission in 2001. We primarily collect data from the CSMAR Solution, a frequently used database developed and maintained by the GTA IT Co., Ltd. In addition, we use annual reports issued by listed companies, official websites as well as other public information to supplement the data draw from the CSMAR Solution. We focus on the time period of 2001-2009 in that the data for all variables could be gathered comprehensively. We exclude some listed firms that are not able to provide comprehensive information from 2001 through 2009, leading to a sample of 58 firms with 522 observations. To test potential sampling bias, we conduct a multivariate analysis of variance (MANOVA), the results suggest there is no significant differences between our final sample firms and initial sample firms, in terms of key firm characteristics (firm ownership, firm age, and profit). The remaining sample firms are situated in 22 provinces in China, as shown in the "Table I".

TABLE I. THE GEOGRAPHICAL DISTRIBUTION OF SAMPLE FIRMS

Region	Frequency	Percent (%)	Cumulative Percent (%)	Region	Frequency	Percent (%)	Cumulative Percent (%)
Anhui	1	1.72	1.72	Jiangxi	2	3.45	55.17
Beijing	4	6.9	8.62	Jilin	4	6.9	62.07
Chongqing	4	6.9	15.52	Liaoning	2	3.45	65.52
Guangdong	9	15.52	31.03	Qinghai	1	1.72	67.24
Hainan	1	1.72	32.76	Shandong	4	6.9	74.14
Hebei	1	1.72	34.48	Shanghai	3	5.17	79.31
Heilongjiang	1	1.72	36.21	Sichuan	2	3.45	82.76
Henan	2	3.45	39.66	Tianjin	2	3.45	86.21
Hubei	1	1.72	41.38	Tibet	1	1.72	87.93
Hunan	2	3.45	44.83	Yunnan	2	3.45	91.38
Jiangsu	4	6.9	51.72	Zhejiang	5	8.62	100

#### A. Dependent variables

In terms of corporate venturing, we code the dependent variable manually by reading the announcements by listed companies every year regarding corporate venturing activities. To obtain a reliable coding, every announcement is read and coded by two authors. There was no disagreement in interpretation. We code '1' for a company if it has an announcement concerning establishing a subsidiary and/or investing in nascent firms in a specific year. We code '0' if such announcement is absent. We find most of sample firms announce a corporate venturing event within every 2-3 years. Accordingly, the dependent

variable is a non-normally distributed variable with many '0' values.

#### B. Independent and moderating variables

- Financial marketization

As a key component of the regional institution framework, the regional financial marketization represents the intensity of financial sector competition within a specific region in China and the extent to which bank loans are allocated according to the credits or the merits of borrowers[29]. The higher level of financial marketization, the more intensified of the competition among financial providers within the region and the loans or credits are more likely allocated

to borrowers with higher efficiency. Our measurement of regional financial marketization was included in the Marketization Index by Fan et al. (2012)[29], which provides the yearly marketization index for all regions or provinces in China from 2001 through 2009 (see a brief introduction of the Marketization Index in Shi et al., (2012)[30]). Therefore, we directly adopted it in the data analysis.

- Ownership types

We first divide firm ownership types into two categories, namely state owned and privately-owned, by identifying the ultimate ownership identities of sample firms. SOEs account for 66.1% of total sample firms, while private firms account for 33.9%. We use one dummy variable "state-owned" to test the hypothesis. Following Delios et al., (2006)[13], we further categorize SOEs into three types according to their affiliations to differing level of governments. Among them, 11.3% are SOEs affiliated to the central government, 30.5% are SOEs affiliated to local governments, 24.5% are marketized SOEs. We use three dummy variables to differentiate ownership identities in the regression models.

### C. Control variables

1) *Firm age*: Prior research claims that older firms will be less likely to engage in corporate venturing activities due to organizational inertia[6]. As a result, we control for the firm age in the regression model.

2) *Firm size*: Prior research shows that firm size has negative effects on corporate entrepreneurial intensity [31] and thus we control for it by using the natural logarithm of total sales, lagged one year.

3) *Past performance*: Past performance is also controlled for because when a firm performs well, it tends to engage in entrepreneurial activities with increased slack resources [8;31]. Accordingly, we include a control variable, past performance, in the regression models. Following (Zahra, 1996)[31], we select the ROA lagged one year as the indicator of past firm performance.

4) *Organizational slack*: Organizational slack refers to the resources in excess of the necessities required by daily operations within a firm[32]. In other words, organizational slack is the resources controlled by a firm but are not put into firm operations[33]. As for the likely effects of organizational slack on the corporate venturing activities, there are two contradictory arguments. Some researchers contend that the organizational slack is able to fuel corporate venturing activities by supplying resources needed in establishing or acquiring new businesses or investing in nascent firms[34]. In contrast, other researchers conjecture that slack resources will do more harm than good in that the

management are likely to become over optimistic about their future and engage less in risk-taking activities with redundant resources at hand. These contradictory thoughts lead us to predict that the organizational slack is likely to influence corporate venturing activities and hence we include it as a control variable in our model. Following Bromiley (2005), we use quick ratio to represent the level of organizational slack[35].

5) *Political connections*: In emerging economies, governments still hold substantial key resources such as land, financial subsidy as well as approvals or access to some regulated industries that are inseparable in carrying out venturing activities. Arguably, firms with more extensive political connections are more likely to gain resources from governments[36], facilitating their implement of corporate venturing. Accordingly, we control for political connections of firm top managements. In western countries, the top management usually refers to top executives such as CEO, CFO and COO. While in China, the chairman of board usually has the real control over the company. Therefore, we treat the chairman of board along with CEO and CFO as the most critical members of the top management. To measure the political connections of a firm, we have to consider how many political connections have been established by these top executives. In China, the working experience in the government agencies and acting as representatives of the people's congress and/or the political consultative conference are deemed to be valuable in establishing political connections[37;38]. We therefore do a text analysis by examining: (1) whether top executives have the working experience in the government agencies, and (2) whether the top management are representatives of the people's congress and/or the political consultative conference. We text analyzed every member of the top management and code '1' if yes and '0' if no. Two authors manually coded the data, determining the inter-rater reliability to be 0.83. The scores are averaged to generate a value for every firm-year and include this variable (lagged one year) in the regression model.

6) *Year effects*: The sample period is 2000 through 2009. To control for potential temporal effects, we included a dummy variable for each year[39].

## IV. ANALYSIS AND RESULTS

Because the data for this study are organized into a pooled cross-sectional time series data set, with multiple observations per firm and over 9 years, we used cross-sectional time series regression analyses to estimate our models. Results from the Hausman (1978) specification test indicated that the random effects model was appropriate for our data[40]. Moreover, the

dependent variable is dichotomous (as described above) and therefore we use the random effects logistic regression technique in Stata ("xtlogit," with clustering on a firm) to estimate all models[39]. To check the robustness of the estimation, we also use the random-effects tobit regression technique in Stata ("xttobit," with clustering on a firm).

"Table II" presents the descriptive statistics and correlations for the variables in this study. The correlations among the independent variables are all below 0.45, suggesting that multicollinearity is not problematic in our analyses.

TABLE II. DESCRIPTIVE STATISTICS AND CORRELATIONS

		Mean	Std. Dev.	1	2	3	4	5	6	7	8
1	<i>CV (binary variable)</i>	0.32	0.47	1.00							
2	<i>Firm age</i>	10.18	3.98	0.25***	1.00						
3	<i>Firm size (ln)</i>	20.66	1.23	0.24***	0.16***	1.00					
4	<i>Political connections<sub>t-1</sub></i>	0.17	0.25	0.02	0.02	0.12**	1.00				
5	<i>Past performance (ROA<sub>t-1</sub>)</i>	0.03	0.07	0.07	-0.10*	0.24***	0.13**	1.00			
6	<i>Organizational slack<sub>t-1</sub></i>	1.38	1.31	-0.11*	-0.19***	-0.20***	0.12**	0.17***	1.00		
7	<i>Financial marketization (institution)</i>	8.23	2.57	0.32***	0.40***	0.41***	0.09*	0.11*	-0.16***	1.00	
8	<i>State-owned (dummy)</i>	0.66	0.47	0.07	0.19***	0.16***	-0.04	-0.02	-0.14**	0.03	1.00

<sup>a</sup> Note: \* if p<.05; \*\* if p<.01; \*\*\* if p<.001.

"Table III" presents the random-effects logistic regression results for the analyses in which we test the influence of regional marketization of financial market and firm ownership (state owned versus. privately-owned) on corporate venturing activities (Hypotheses 1-2). Hypothesis 1 suggests that the regional financial marketization (institution) in which firms are embedded in has positive effects on the corporate venturing by firms. Controlling for the year dummies, firm age, firm size, political connections, organizational slack as well as past performance by firms, we find in the model 2 of "Table III" that the financial marketization (institution) is positively associated with corporate venturing (coeff =.14, p<.10). Thus, Hypothesis 1 is supported. Hypothesis 2 suggests that the state-owned firms are more likely to benefit from the development of regional financial marketization than privately-owned firms. In the model 3 of "Table III", we find that the state ownership positively moderate the relationship between financial marketization (institution) and corporate venturing (coeff =.39, p<.01). Therefore, the hypothesis 2 is supported as well.

venturing link (coeff =.33, p<.05), suggesting that the hypothesis 3 is supported.

To further examine what types of SOEs are most benefited from the institutional transitions (Hypothesis 3), we divide the SOEs into three types and include them in the random-effects logistic regression model. As shown in the "Table IV", specifically model 3 and model 5, both SOEs affiliated to central government (coeff =.15, p>.10) and marketized SOEs (coeff =.07, p>.10) have positive moderating effects on the link of financial marketization and corporate venturing but not significant at the 0.10 level. However, as we can see in the model 4 and model 6, SOEs affiliated to local government has positive and significant moderating effect on the financial marketization - corporate

**TABLE III. REGIONAL FINANCIAL SECTOR MARKETIZATION, OWNERSHIP AND CORPORATE VENTURING (LOGISTIC REGRESSION ANALYSIS)**

<b>Variables</b>	<b>M1</b>	<b>M2</b>	<b>M3</b>
<i>Intercept</i>	-6.42 (2.83)	-4.90 (2.80)	-5.90 (3.01)
<i>Year dummy</i>	Included	Included	Included
<i>Firm age</i>	0.02 (0.05)	0.01 (0.05)	0.02 (0.05)
<i>Firm size (ln)</i>	0.29* (0.13)	0.20 (0.13)	0.24† (0.14)
<i>Political connections<sub>t-1</sub></i>	-0.19 (0.55)	-0.24 (0.54)	-0.38 (0.57)
<i>Past performance (ROA<sub>t-1</sub>)</i>	3.66 (2.36)	3.85 (2.34)	4.82* (2.45)
<i>Organizational slack<sub>t-1</sub></i>	-0.05 (0.15)	-0.06 (0.14)	-0.05 (0.15)
<i>Financial marketization (institution)</i>		0.14† (0.08)	-0.06 (0.10)
<i>State-owned (dummy)</i>		0.32 (0.30)	0.00 (0.33)
<i>Financial marketization × state-owned (dummy)</i>			0.39** (0.13)
<i>Log likelihood</i>	-254.30	-252.20	-247.35
<i>Wald chi2</i>	28.63	31.67	36.37

<sup>a.</sup> Note 1: † if p<.10; \* if p<.05; \*\* if p<.01; \*\*\* if p<.001.

<sup>b.</sup> Note 2: The number in the parenthesis is Std. Err.

**TABLE IV. REGIONAL FINANCIAL SECTOR MARKETIZATION, STATE-OWNERSHIP TYPES AND CORPORATE VENTURING (LOGISTIC REGRESSION ANALYSIS)**

<b>Variable</b>	<b>M1</b>	<b>M2</b>	<b>M3</b>	<b>M4</b>	<b>M5</b>	<b>M6</b>
<i>Intercept</i>	-5.26* (2.82)	-4.69† (2.82)	-4.72† (2.82)	-6.34* (3.00)	-4.48 (2.86)	-6.32* (3.13)
<i>Year dummy</i>	Included	Included	Included	Included	Included	Included
<i>Firm age</i>	0.02 (0.05)	0.01 (0.05)	0.01 (0.05)	0.02 (0.05)	0.00 (0.05)	0.02 (0.05)
<i>Firm size (ln)</i>	0.22* (0.13)	0.19 (0.13)	0.19 (0.13)	0.26† (0.14)	0.18 (0.13)	0.26† (0.14)
<i>Political connections<sub>t-1</sub></i>	-0.26 (0.54)	-0.30 (0.55)	-0.29 (0.55)	-0.29 (0.56)	-0.32 (0.55)	-0.40 (0.58)
<i>Past performance (ROA<sub>t-1</sub>)</i>	3.64 (2.34)	3.85† (2.33)	3.88* (2.33)	4.42† (2.36)	3.87† (2.34)	4.88* (2.44)
<i>Organizational slack<sub>t-1</sub></i>	-0.07 (0.14)	-0.07 (0.14)	-0.06 (0.14)	-0.05 (0.14)	-0.07 (0.14)	-0.05 (0.15)
<i>Financial marketization (institution)</i>		0.14† (0.08)	0.13† (0.08)	0.03† (0.09)	0.13† (0.08)	-0.07 (0.10)
<i>SOEs affiliated to central government</i>		0.12 (0.47)	-0.04 (0.53)	0.15 (0.48)	0.12 (0.47)	-0.18 (0.55)
<i>SOEs affiliated to local government</i>		0.39 (0.34)	0.38 (0.34)	0.09 (0.37)	0.39 (0.34)	0.02 (0.39)
<i>Marketized SOEs</i>		0.33 (0.37)	0.33 (0.37)	0.30 (0.37)	0.27 (0.40)	0.07 (0.42)
<i>Financial marketization (institution) × SOEs affiliated to central government</i>			0.15 (0.21)			0.37 (0.23)
<i>Financial marketization (institution) × SOEs affiliated to local government</i>				0.33* (0.14)		0.46** (0.16)
<i>Financial marketization (institution) × marketized SOEs</i>					0.07 (0.16)	0.29 (0.18)
<i>Log likelihood</i>	-254.30	-252.04	-252.04	-251.77	-248.96	-251.94
<i>Wald chi2</i>	28.63	31.96	31.96	32.16	35.33	32.09

<sup>a.</sup> Note 1: † if p<.10; \* if p<.05; \*\* if p<.01; \*\*\* if p<.001.

<sup>b.</sup> Note 2: The number in the parenthesis is Std. Err.

To test the robustness of the logistic regression model, we run the random-effects Tobit analysis as well. "Table V" and "Table VI" show the results. We also find that the financial marketization has positive impacts on corporate venturing by firms (coeff =.02, p<.05) and therefore the hypothesis 1 is supported. Consistent with hypothesis 2, the state-owned ownership positively enhances the relationship between the financial marketization and corporate venturing (coeff =.04, p<.05). Though SOEs affiliated to central government (coeff =.03, p>.10) and marketized SOEs

(coeff =.01, p<.10) both have positive influence on the financial marketization and corporate venturing link, they are not statistically significant. Similar in the logistic analysis, SOEs affiliated to local government has positive and significant moderating effect (coeff =.03, p<.10), suggesting the hypothesis 3 is supported. Taken together, the findings in the Tobit analysis is highly consistent with those in the logistic analysis, thereby indicating the robustness of our statistical analysis.

TABLE V. REGIONAL FINANCIAL SECTOR MARKETIZATION, OWNERSHIP AND CORPORATE VENTURING (TOBIT REGRESSION ANALYSIS)

Variable	M1	M2	M3
<i>Intercept</i>	-0.23 (0.39)	0.05 (0.38)	-0.08 (0.40)
<i>Year dummy</i>	Included	Included	Included
<i>Firm age</i>	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)
<i>Firm size (ln)</i>	0.03† (0.02)	0.01 (0.02)	0.02 (0.02)
<i>Political connections<sub>t-1</sub></i>	-0.04 (0.08)	-0.05 (0.08)	-0.06 (0.08)
<i>Past performance (ROA<sub>t-1</sub>)</i>	-0.04 (0.30)	-0.10 (0.30)	0.03 (0.30)
<i>Organizational slack<sub>t-1</sub></i>	0.00 (0.02)	0.00 (0.02)	-0.01 (0.02)
<i>Financial marketization (institution)</i>		0.02* (0.01)	0.00 (0.01)
<i>State-owned (dummy)</i>		0.04 (0.04)	0.04 (0.04)
<i>Financial marketization × state-owned (dummy)</i>			0.04* (0.02)
<i>Log likelihood</i>	-269.71	-266.40	-262.91
<i>Wald chi2</i>	90.13	97.36	105.54

a. Note 1: † if p<.10; \* if p<.05; \*\* if p<.01; \*\*\* if p<.001.

b. Note 2: The number in the parenthesis is Std. Err.

TABLE VI. REGIONAL FINANCIAL SECTOR MARKETIZATION, STATE-OWNERSHIP TYPES AND CORPORATE VENTURING (TOBIT REGRESSION ANALYSIS)

Variables	M1	M2	M3	M4	M5	M6
<i>Intercept</i>	-0.23 (0.39)	0.03 (0.39)	0.02 (0.39)	-0.12 (0.40)	0.06 (0.39)	-0.15 (0.41)
<i>Year dummy</i>	Included	Included	Included	Included	Included	Included
<i>Firm age</i>	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)
<i>Firm size (ln)</i>	0.03† (0.02)	0.01 (0.02)	0.02 (0.02)	0.02 (0.02)	0.01 (0.02)	0.02 (0.02)
<i>Political connections<sub>t-1</sub></i>	-0.04 (0.08)	-0.04 (0.08)	-0.04 (0.08)	-0.04 (0.08)	-0.05 (0.08)	-0.06 (0.08)
<i>Past performance (ROA<sub>t-1</sub>)</i>	-0.04 (0.30)	-0.10 (0.30)	-0.09 (0.30)	-0.03 (0.30)	-0.10 (0.30)	0.04 (0.30)
<i>Organizational slack<sub>t-1</sub></i>	0.00 (0.02)	0.00 (0.02)	0.00 (0.02)	0.00 (0.02)	0.00 (0.02)	0.00 (0.02)
<i>Financial marketization (institution)</i>		0.02* (0.01)	0.02* (0.01)	0.02* (0.01)	0.02* (0.01)	0.00 (0.01)
<i>SOEs affiliated to central government</i>		0.05 (0.07)	0.05 (0.07)	0.05 (0.07)	0.05 (0.07)	0.05 (0.07)
<i>SOEs affiliated to local government</i>		0.04 (0.05)	0.04 (0.05)	0.03 (0.05)	0.04 (0.05)	0.03 (0.05)
<i>Marketized SOEs</i>		0.03	0.03	0.03	0.03	0.03

Variables	M1	M2	M3	M4	M5	M6
		(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
<i>Financial marketization (institution) × SOEs affiliated to central government</i>			0.03 (0.02)			0.05† (0.03)
<i>Financial marketization (institution) × SOEs affiliated to local government</i>				0.03† (0.02)		0.04* (0.02)
<i>Financial marketization (institution) × marketized SOEs</i>					0.01 (0.02)	0.03 (0.02)
<i>Log likelihood</i>	-269.71	-266.40	-265.82	-264.92	-266.27	-262.53
<i>Wald chi2</i>	90.13	97.35	98.74	100.89	97.66	106.40

<sup>a.</sup> Note 1: † if p<.10; \* if p<.05; \*\* if p<.01; \*\*\* if p<.001.

<sup>b.</sup> Note 2: The number in the parenthesis is Std. Err.

## V. DISCUSSION

Prior research suggests firms vary significantly in their use of corporate venturing due to their different environments and intra-organizational factors[41], [42]. Albeit insightful, prior research has paid less, if not no, attention to the boarder institution factors that have bearing on the occurrence of corporate venturing. Institutions are rules of games of the society and firms are embedded in specific institutional frameworks. In this paper, we find that, in a large and complex economy setting, firms' corporate venturing activities are responding to the development of market supporting institutions. Specifically, we find the level of regional financial sector marketization a firm is confronted with is significantly associated with its likelihood of engaging in corporate venturing. In doing so, we explore the antecedent of corporate venturing in a unique way by bringing together institutions and corporate venturing.

In emerging economies, firm ownership is a remarkable feature for firms[43] and can be a parsimonious and critical variable for management scholars to explore the institutional impacts of emerging economies in transition. In this paper, we model firm ownership as a moderating variable and find that SOEs benefit more from the marketization of regional financial sector in terms of engaging in corporate venturing activities than POEs. More specifically, SOEs affiliated to local government are the greatest recipient of institutional premium with the special treatment from local governments. Under the fiscal federalism, local governments in China currently have the right to levy taxes and obtain the retained earnings from SOEs under their direct control. Hence, local governments have the incentive to support their affiliated SOEs by giving privileged treatments towards them, which lower their transaction costs in financing and leads to more corporate venturing activities.

This paper has two-fold theoretical contributions. Firstly, we extend the institution-based view to the study of antecedents of corporate venturing and unveil the significant influence exerted by the financial sector

marketization (formal institutions) to corporate venturing activities in an emerging economy setting, thereby enriching the extant research on antecedents of corporate venturing from the perspective of intra-organizational resources or capabilities as well as industry level technology opportunity in mature or developed economy settings. Secondly, we explore the consequences of ownership types on the relationship between institutions and corporate venturing activities and find privately and state-owned firms receive differing "institutional premium". In other words, the positive influence of institutions on strategic choices by firms is dependent at least in part on the ownership types (POEs versus SOEs) in emerging economies such as China. In particular, we find even among SOEs in China, firms affiliated to differing level of government benefit distinctively from the financial sector institution transitions due to the fiscal federalism. Taken together, our findings not only support the notion that institutions matter to strategic choices by firms but also reveal that in emerging economies such as China the ownership identities determine considerably the significance of institutional impacts, thereby echoing Powell's (1990) call for "tackling the deeper and more difficult questions of how and when institutions matter and in what ways".

This paper has managerial implications as well. The results indicate that POEs still have liabilities in accessing the financial resources from formal outlets in China despite the progress has been made in the marketization of financial sector. Though the Chinese government has formally recognized the important contributions made by the private sector to the overall economic development and enacted rules and laws to protect the property rights of POEs, the private sector remains disadvantageous in accessing the financing from banks. This long-standing issue is in part due to the socialist legacy that deems POEs as "marginalized" economic players. Given that the private sector contributed more than 60% of GDP in China, the government has to make further efforts to increase the legitimacy of POEs and lower their transaction costs in external financing so that POEs are able to enjoy more sources of financing and unleash their growth potential.

The good news is the Chinese ruling Communist Party pledges recently that it plans to let markets play a "decisive" role in allocating resources as part of a significant economic overhaul, marking a shift from past statements that described a "basic" role for the markets in the country's tightly-regulated economy[44]. Hopefully, we can expect in a more marketized economy in the future, POEs are able to gain the supports from outsiders more easily with their rising economic status and superior economic performance.

Like every research, this paper is not without limitations. While the institutions consists of formal and informal ones[45], this paper only investigates formal institutions. Future studies are encouraged to investigate the effects of informal institutions on corporate venturing by firms or extend our research by examining the consequence of formal and informal institutions interaction on corporate venturing, thereby offering a more comprehensive understanding of the link between institutions and corporate venturing.

## VI. CONCLUSION

The research interest by strategy and entrepreneurship scholars on the relationship between the institutions and organizational outcomes is growing rapidly[46;47;48]. In this paper, we understand the corporate venturing implications of regional institutions and how firm ownership type moderates the relationship between institutions and corporate venturing. Significant sub-national institutional differences as well as the existence of various ownership types of firms operating in China provide us with an ideal setting to examine these issues. By utilizing data collected from China's pharmaceutical industry, we substantiated the link between regional financial institution and corporate venturing and highlighted the heterogeneous benefits received by firms with differing types of ownership identities as the consequences of socialist legacy, historical cooperations as well as fiscal federalism in China.

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