Outward Foreign Direct Investment Drive and the Subsidy Effects on Private-Owned Enterprise in China

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Abstract: During the eleventh five-year socioeconomic planning period (2006-2010), Chinese government began to officially encourage outward foreign direct investment (FDI) and varying types of subsidies were offered to the private-owned enterprises (POEs) in order to increase their competitiveness overseas. This study was conducted to explore the subsidy policy effects. By analyzing the levels of marketization and competition intensity, this study also examined their moderating effects. The research design is a quantitative study at the firm level, based on a dataset of 1,216 POEs listed in Shanghai and Shenzhen Stock Exchange during 2009-2016. The logit regression analysis and linear regression analysis showed that the level of subsidies increased outward FDI. As the local business became more marketized and competition became intense, the link between the level of subsidies and the outward FDI was strengthened. In addition, using the same dataset and the fixed-effect regression model, this study supplementarily found that subsidy also increased exports. It means that the POEs outward FDI did not exclude exports. Overall, this study suggests that the subsidy recipient POEs undertook outward FDI but in a manner to connect their domestic production (exporting) bases to the foreign market entries, for example, establishment of sales subsidiaries rather than production or R&D subsidiaries in the host markets.

Keywords: Government Subsidies, Outward FDI, Marketization, Competition Intensity, POEs, China

1. Introduction

In the 2000s, a large-scale of foreign direct investment (FDI) continued to flow in China, which led to economic growth as well as inflation. Technological capacities for domestic firms improved over time, however, most consumer-good market remained dominated by the foreign brands. Competing against the foreign brands, Chinese firms naturally possessed domestic orientation in business operation. The status quo limited further growth, which required 'global' managerial competitiveness, knowledge about 'global' market, and 'global-level' innovation capabilities. During the 2006-2010 11.5 Planning period, the Chinese government finally decided to push domestic firms to overseas markets. Because domestic market showed a good prospect, growing at 8-14% (during the 2000s), Chinese firms were rather willing to stay domestic.

In order to motivate, the government began to offer subsidies. Generally, the subsidies supported varying activities, for example, R&D for technical upgrading, brand value enhancement, or suggestion for a technical standard. The purpose was to aid firms building 'global' competitiveness, which

expectedly encouraged outward FDI. However, it is not clear whether the policy achieved its goal, or rendered competitive domestic firms more inbound-oriented.

Government subsidies first appeared in the 1920s as a macroeconomic instrument to optimize the allocation of social resources for their most efficient use[1]. A large number of literature has explained on the subsidy effects on innovation[2], business performance[3], and the economic growth[4]. Yet the policy effects for outward FDI were not examined rigiously. Even in China, most studies have focused on the subsidies and exports[5].

The effect of government subsidy should be two-faced. On one hand, it may fulfill the intended goal as a policy directive by motivating the firms because subsidies supplement the pool of lacking resources for the recipient firms[6]. On the other hand, there is a possibility of state favoritism during the selection process, which generates the opposite effects. In other words, the subsidies may worsen the income redistribution and reinforce domestic orientation as they strengthen the political ties between the firm and the state[7]. Therefore, the subsidiy effects are valuable topic to examine. Given the background, this paper hypothesize heterogeneity among firms in a given policy effect, which should arise from the market competition-related environment. Idenfication of the firm heterogeneity through the lens of market environment highlights the significance and relevance of this research. As a mechanism to show heterogeneity among firms, this paper selects the level of marketization and competition intensity as a moderating effect.

This paper uses a dataset based on 1,216 firms listed in the Shanghai and Shenzhen Stock Exchanges from 2009- 2016. This paper conduct empirical analyses to find the effects of government subsidies on the recipient firms' outward FDI, as well as the moderating effects of marketization and competition intensity. In what follows, this paper introduce theories and hypothesis development, explained methodology, show statistical findings, and conclude with some discussions.

2. Method

2.1 Hypothesis: Developmental state vs. Deadweight loss over Government subsidy

At the business literature, outward foreign direct investment (FDI) is often regarded as capability growth of firms. This perspective is based on the premise of firm-specific advantages in the OLI model that overseas expansion requires skills or capability unique to the entrant. For example, FDI inflows into the BRIC countries positively contributed to the technological innovation capabilities[8], and similar findings were reported in China in the environmental technology sector[9] and in overall productivity growth[10].

Historically, skill formation or capability building has been promoted by the efforts of government. In particular, the macroeconomic regulations through fiscal incentives can not only promote the smooth development of firms. For example, the government incentives and direct financial subsidies for R&D activities effectively increased firms' R&D investment[11] and the economic value added[12].

The international expansion of a firm requires significant amount of inputs in resources and capabilities, and the requirements tend to be set high for the emerging-market firms. For most emerging-markets firms, foreign entry was not a matter of strategy but of a capability, particularly financial capability. Due to the institution void in domestic market, firms in emerging markets find it hard to access external [financial] resources[13]. Under the situation, government subsidies, by providing direct or indirect financial supports, can mobilize funds needed in the process of international expansion[14].

Although government intervention does not always leads to the outward FDI action, it affects firms' competitive advantage[15]. There have been cases that developmental states, by providing loans (usually at low interest rates), subsidies, or incentives, promote export performances[16]. Domestic firms, on the condition that they perform the expected level, could continue to receive the benefits. With this

mechanism, some developing countries with growth orientation cultivated the infant industries, which did not possess technical competitiveness but became gradually innovative, as seen from Taiwan, Korea, Singapore or even Japan after the Second World War[17].

There are, however, ample documents about the intervention failure. Intervention distorts allocation mechanism and, consequently, the deadweight losses in the economic and social aspects. Most notably, import substitution policy in South America only weakened capabilities of domestic firms although the policy aimed at protecting local firms from fierce competition with global firms[18]. The local firms became more dependent upon the production network, dominated by the multinational enterprises[19]. Selection of target industries usuall involves nepotism and bribery. Therefore, this paper examine whether China's subsidy policy attained the goal to push firms into overseas market.

Hypothesis 1: Government subsidies have positive effects on the POE outward FDI.

The hypothesis 1 highlights benefits in the eased access to the financial resource. Therefore, this study suggests the mechanism that firms adapted to the market environment and ready to compete in the market are more likely to utilize the financial accesses into the outward FDI. The degree of marketization proxies the stable operation of the overall market economy, including the effectiveness in the resource allocation. The degree of marketization varies significantly across regions in China, and the ability of firms to develop and the degree of demand for R&D activities varies from region to region. Foreign expansion of firms is a high-risk project with unpredictable outcomes and uncertainty in inputs and outputs, so irms are in a good position to obtain information about foreign expansion faster with good resources and information in regions with high marketization, while the government will provide a fairer subsidy environment with less intervention to firms, thus firms have more autonomy and are more aggressive in their expansion behavior and scale.

The aforementioned discussion emphasizes again that market environment is important in generating the policy effects and government subsidies is not an exception[20]. Firstly, marketization is a core aspect in regional market environment, particularly the level of factor market development[21]. Scholars have demonstrated that the regions with a higher level of marketization have a higher level of economic freedom, under which government subsidies, supplementing market mechanisms, optimize resource allocation and motivate firms to seek larger markets[22]. Conversely, regions with a lower level of marketization are more prone to rent-seeking behavior of enterprises under the government-led logic, and the role of government subsidies in motivating enterprises to internationalize activities is severely weakened.

The function of local government also differs with the marketization level. Under a higher level of marketization, the role of local governments changes from top-down to bottom-up operation. In those circumstances, firms have more freedom in responding to the market needs. By repeating the experiences, firms can nurture capabilities to adjust market changes and to survive in competition. The mechanism can be applicable to the foreign market entries if necessary conditions are fulfilled for those consider outward FDI, such as the financial supports[23]. Accordingly, government subsidies in highly-marketized regions would encourage firms into replicating domestic competitiveness in the overseas market. Therefore, this paper hypothesize as follows:

Hypothesis 2: The level of marketization positively moderates the effects of government subsidies on the POEs outward FDI.

Another dimension in market competition is the competition intensity. China's business environment has improved over time, but the problems of an imperfect competitive market environment, unbalanced regional development and discriminatory administrative interventions still exist. In the product market, the limited nature of resources inevitably intensifies market competition, and competitive pressure can motivate firm management to seek external expansion in search of external resources and advantages. Overtime, as multinational enterprises have entered the Chinese market, Chinese market has become a subset of global market. It means competition becomes fiercer. As a result of increasing competition

intensity, more firms exited and profit margin decreased. Notably from the industrial organization theory, competition intensity affects the profitability and R&D investment of firms[24]. If the industry is too competitive, the industry would soon mature and profit margin would drop. Firms subsequently explore new markets to sell or alternative markets to produce[25]. Business history has several precedent cases that an increase in domestic competition intensity crowded the firms into going overseas in the Japanese electronics industry. Therefore, competition intensity in the business locale would strengthen the positive effects of government subsidies on the POE outward FDI.

Hypothesis 3: The level of competition intensity positively moderates the effects of government subsidies on the POEs outward FDI.

2.2 Research Method

The context of this study is the drivers of Chinese firms' outward FDI drive, so this paper focus on Chinese firms' "go global" decision and "go global" export volume. After the international turbulence and economic crisis in 2008, the gradual recovery of the global economy in 2009 has brought new opportunities for Chinese firms to "go global". Therefore, this paper adopts a quantitative approach and selects 1,216 private firms listed in Shanghai and Shenzhen from 2009 to 2016. The data of this study consists of two sources, (1) WIND database which records the detailed information of foreign investment, including the name, code, time, and amount of investment. This database offers the outbound investment data from 2009 to 2016. Then, the basic information and micro data of the corresponding firms was obtained from the (2) CMSAR database, including the firm's subsidiarity, firm size, firm age, ROA, leverage, industry dummy and R&D intensity. In order to make the collected data more accurate, researchers excluded companies with the ST marker because ST markers have abnormal financial performance (bankrupt companies) and usually stop disclosing. Finally, 3,874 observations were obtained. Since it is concerned with whether firms make outward FDI decisions(a binary variable) and the ratios of exports by firms (a continuous variable), researchers use STATA 16 program to validate our ideas using two models, logit regression model and linear regression model. The unit of analysis is a firm.

The dependent variable is outward FDI. Following Sciascia et al.[26], this paper use a binary variable to measure a firm's outward FDI action it is coded by 1 if a firm executed a foreign market entry in the current year, and 0 otherwise. This paper also use the firm's exports as our dependent variable, which is a continuous variable measured by the firm's exports as a percentage of total revenue for the year (%).

Next, the independent variable is government subsidies. Government subsidies are monetary-valued assets obtained from the government. They are provided as, not limitedly to, direct subsidies, loan subsidies, or innovation incentives. In this study, this paper estimate the ratio of total government subsidies to the operating income to represent the government subsidy in the current year.

This study also includes two moderation variables, marketization and Industry concentration. The National Economic Research Institute in China annually releases the NERI index, a database that specifically measures the relative level in the marketization in China. The NERI index covers 31 provinces, autonomous regions, and municipalities directly under the central government[27]. It takes values from 0 to 10, with the province with the highest degree of marketization scoring 10 and the province with the lowest scoring 0. Also, industry concentration is measured by the Herfindahl Hirschman Index (HHI), which is the sum of the squares of the total revenue of each firm in the industry a percentage of the total revenue of all firms in the industry, using the 79 secondary industry segments of the SEC as the basis for industry classification.

Several control variables are used to control unobserved effects. Firm size is measured by the logarithm of asset size. Firm age is measured by the difference between the year of observation and the year of establishment of the enterprise. ROA is return on assets for financial status. Leverage is exmained

by a ratio of debt over asset. R&D intensity is easured by research and development expendeiture ratio. Finally, industry is a dummy variable, if the company belongs to the manufacturing industry then it is coded as 1.

3. Results and Discussion

Chinse POEs were in need of financial supports due to the fact that they were disadvantageous in accessing financial resources, which is essentially necessary for growth of firms. Therefore, this research examined whether government subsidies affected outward FDI from China. Further, whether firms are accustomed to the market competition should moderate the subsidy effects on the outward FDI. The statistical analysis, based on the archived panel dataset, is undertaken at the firm level. The statistical results based on the logit regression analysis and the linear regression analysis suggest that the government subsidies promoted outward FDI, and the relationship is strengthened by the moderating effects of marketization and industry concentration. It means that, as long as the internationalization subsidies are concerned, the Chinese government turned out to be the developmental state.

[Table 1] Descriptive Statistics and Correlation Matrix (N=3,874)

Variables	Mean	SD	Min	Max	(1)	(2)	(3)
(1) Outward FDI	0.641	0.480	0	1	1.000		
(1) Export ratio	0.138	0.222	0	1.157	1.000		
(2) Subsidy	15.66	1.378	7.824	21.02	0.015	1.000	
(3) HHI	0.094	0.0568	-0.181	0.419	-0.155*	-0.054*	1.000
(4) Marketization	9.705	4.484	-0.700	16.94	0.124*	0.037*	-0.025
(5) Leverage	0.332	0.199	0.007	3.768	-0.019	0.201*	0.014
(6) ROA	0.051	0.049	-0.677	0.374	-0.037*	0.072*	0.128*
(7) R&D	0.043	0.056	0	1.000	-0.037*	0.024	-0.048*
(8) Frim size	3.162	0.448	1.146	5.292	0.131*	0.472*	-0.072*
(9) Firm age	13.33	5.366	1	36	-0.059*	0.024	0.094*
(10) Industry	0.788	0.409	0	1	0.225*	0.109*	-0.303*

(Continued)							
Variables	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(4) Marketization	1.000						
(5) Leverage	0.013	1.000					
(6) ROA	-0.002	-0.325*	1.000				
(7) R&D	0.058*	-0.301*	-0.009	1.000			
(8) Frim size	-0.009	0.341*	0.029	-0.161*	1.000		
(9) Firm age	0.081*	0.151*	-0.059*	-0.069*	0.042*	1.000	
(10) Industry	-0.044*	-0.186*	-0.002	-0.034*	0.062*	-0.029	1.000

*** p<0.01, ** p<0.05, * p<0.1

[Table 1] reports descriptive statistics and correlations for the variables used in the analysis. All variables are moderately correlated and variance inflation factors (VIF) are below 10, a threshold point for multicollinearity. Therefore, multicollinearity is not a problem in this study. [Table 2] presents the relationship between government subsidies and outward FDI. Models 1-3 test the predicted relationships of Hypotheses 1-3, and model 4 includes all variables. In Model 1, the coefficient on subsidy is positive and significant (0.083, p<0.01), thus supporting Hypothesis 1. The result means that firms that receive more government subsidies are indeed more likely to conduct outward FDI. In Model 2, the coefficient on subsidy×marketization is positive and significant (0.017, p<0.01). It means that marketization positively moderates the effects of government subsidies on outward FDI, thus supporting Hypothesis 2. Finally, in Model 3, the coefficient on subsidy×HHI is positive and significant (2.072, p<0.01). It

means that competition intensity in the business environment strengthens the effects of government subsidies on outward FDI, thus supporting Hypothesis 3. For a complementary analysis, this paper replace outward FDI with export ratio, and present the results in [Table 3]. In Model 1, the coefficient on subsidy is positive and significant (0.022, p<0.01). It means that government subsidies also encourage exporting. Other moderating effects are similar with the results with outward FDI for the dependent variable. In Model 2, the coefficient on subsidy×marketization is positive and significant (0.003, p<0.05), and in model 3, the coefficient on subsidy×HHI is positive and significant (0.184, p<0.05).

[Table 2] Results of Fixed-Effect Logit Regression

DV= Outward FDI	Model 1	Model 2	Model 3	Model 4
Subsidy	0.083***	-0.0682	-0.108*	-0.220***
	(0.031)	(0.063)	(0.063)	(0.079)
Leverage	-0.539**	-0.606**	-0.560**	-0.636**
	(0.246)	(0.250)	(0.254)	(0.258)
ROA	-2.943***	-3.406***	-1.863**	-2.291***
	(0.832)	(0.855)	(0.841)	(0.864)
R&D	-1.470**	-1.632**	-1.623**	-1.832**
	(0.719)	(0.742)	(0.733)	(0.757)
Firm size	0.316***	0.362***	0.290***	0.328***
	(0.101)	(0.103)	(0.103)	(0.105)
Firm age	-0.052***	-0.048***	-0.0473***	-0.0432***
	(0.007)	(0.008)	(0.007)	(0.007)
Industry	1.865***	1.961***	1.670***	1.755***
	(0.092)	(0.094)	(0.096)	(0.098)
Subsidy*HHI			2.072***	1.700***
			(0.570)	(0.565)
HHI			-40.14***	-34.16***
			(9.113)	(9.020)
Marketization		-0.189*		-0.186*
(Continued)		(0.098)		(0.105)
Subsidy*Marketization		0.017***		0.017***
		(0.006)		(0.002)
Constant	-2.782***	-1.255	1.090	2.022*
	(0.448)	(0.969)	(0.943)	(1.221)
N	3,867	3,867	3,867	3,867
Prob > χ2	0.000	0.000	0.000	0.000
Pseudo R2	0.127	0.148	0.150	0.169
Year	Included	Included	Included	Included

Standard errors in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01

[Table 3] Results of Fixed-Effect Regression

DV=Export ratio	Model 1	Model 2	Model 3	Model 4
Subsidy	0.022***	-0.005	0.002	-0.019
	(0.005)	(0.011)	(0.010)	(0.013)
Leverage	-0.106**	-0.111**	-0.098**	-0.104**
	(0.044)	(0.043)	(0.043)	(0.043)
ROA	-0.676***	-0.685***	-0.476***	-0.494***
	(0.157)	(0.154)	(0.156)	(0.153)
R&D	-0.168	-0.253*	-0.242*	-0.321**
	(0.135)	(0.133)	(0.133)	(0.131)
Firm size	0.060***	0.063***	0.051***	0.054***
	(0.018)	(0.018)	(0.018)	(0.018)
Firm age	-0.006***	-0.007***	-0.004***	-0.005***
	(0.001)	(0.001)	(0.001)	(0.001)
Industry	0.420***	0.428***	0.364***	0.375***

	(0.018)	(0.017)	(0.018)	(0.018)
Subsidy*Marketization		0.003**		0.002**
		(0.001)		(0.001)
Marketization		-0.024		-0.019
		(0.017)		(0.017)
Subsidy*HHI			0.184**	0.166**
			(0.076)	(0.076)
HHI			-4.204***	-3.870***
			(1.194)	(1.189)
Constant	-0.059	0.207	0.412***	0.590***
	(0.084)	(0.184)	(0.148)	(0.206)
N	3,867	3,867	3,867	3,867
Prob > F	0.000	0.000	0.000	0.000
R2	0.159	0.188	0.183	0.209
Year	Included	Included	Included	Included

Standard errors in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Historically, government subsidies have generated two opposite effects. Some developmental states selectively intervened in resource allocation, promoting firms into capacity building. In contrast, state intervention led only to the economic and social distortion, yielding deadweight losses. Given the divergent results, this paper examine the effects of government subsidies on outward FDI. The statistical findings suggest that government subsidies actually promote outward FDI as well as exporting for the same sample firms. Considering the early stage of outward FDI in China, the results are reasonable. Based on the expost assessment on the subsidy policy in China, the reasearchers argue that the policy was the role of developmental state rather than deadweight loss. Previous studies have shown that the degree of marketization varies widely across regions in China, but the impact on the degree of marketization is mainly focused on firms' technological innovation performance, level of resource commitment , and so on. In this paper, researchers used the degree of marketization as a moderating variable and find that the level of marketization positively moderates the effect of government subsidies on POEs' outward FDI (exports). Previous studies have examined the effect of industry concentration (HHI) on the spillover effect of foreign firms and downstream firms, but this study focuses on the moderating effect of the intensity of industry competition, and the results show that industry competition positively moderates the relationship between government subsidies and firms' foreign direct investment (exports).

Based on the above findings, this paper makes the following contributions to the study of society. First, this paper enriches the mechanisms that influence the activities of Chinese POEs in OFDI through empirical analysis. It provides a direction for the international expansion of Chinese enterprises and the "go out" strategy of the Chinese government. Secondly, this paper is conducted mainly by quantitative research with Chinese POEs. Nevertheless, the paper claims credit because it captures a valuable and unique presence given that only a part of firms in other emerging markets such as India or Brazil are globalized, while most are engaged in businesses in the domestic market. Thus, the research provide managerial and policy recommendations for other emerging market countries. Finally, the paper takes into account the regional differences in development and competitive environment of China as a rapidly developing developing country, and provides references for policy makers.

This article also has several limitations. First of all, this paper only studies POEs. China, as a country with diversified equity nature, has different external financing and policy burdens due to different equity nature of enterprises. Among listed companies with different ownership nature, the promotion effect of government subsidy on export may be different. Therefore, future research can focus on the comparison between state-owned enterprises and private enterprises in China. Secondly, this paper only studies the government's policy subsidies. However, under China's special political system, the relationship network between enterprises and the government and the connection of policy ties may have different influences on their decisions. Future research could look at many aspects of government subsidies.

This study explores the issues related to outward FDI from China. Since China is a developing country with rapid growth achievement and a unique political system, this study is of great relevance to its economic development level and efficiency. In the future research, the researchers consider that it can be continued in this direction and aim to do more in-depth research in the following aspects: First, to extend the research object to developing countries, future research should try to establish a more extensive and applicable transmission mechanism and theoretical model of international FDI, and explain the principles of it. Secondly, it is necessary to search for the micro mechanisms of outward FDI interaction and explain its mechanism of action from a new perspective. Third, it is recommended to study the reverse spillover effects of outward FDI from developing countries, such as the impact of outward FDI on industrial upgrading, local economic resilience, and innovation level in China and other countries.

4. Conclusion

With the accelerated pace of Chinese enterprises' "go global", the Chinese government has deepened the promotion of Chinese enterprises' OFDI activities. Given the influence of Chinese enterprises in the international arena, this paper mainly focuses on Chinese enterprises' OFDI activities as the main research topic. This is a key concern for academics, government and enterprises that whether the outward FDI policy attained the policy goal. Based on this, this paper empirically examines the impact of government subsidies on Chinese firms' OFDI decisions and investments using firm-level micro data.

The results find that, as predicted by researchers, government subsidies can compensate for institutional weaknesses (underdeveloped markets) and achieve policy goals, thus increasing firms' willingness and size of outward FDI.The results mean that outward FDI and exporting were tiedly executed. The results mean that outward FDI and exporting were tiedly executed, complementing each other. Thus, the Chinese FDI should be sales subsidiaries rather than production or R&D subsidiaries. The level of marketizationand competition in the city where the firm is located will also have a different impact on it.

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