Print ISSN: 1738-3110 / Online ISSN 2093-7717
http://dx.doi.org/10.15722/jds.17.07.201907.45

Does Multinationality Matter the Firm Performance?

Renhong WU*, Yugang HE**, Md. Alamgir HOSSAIN***

Received: June 03, 2019. Revised: June 27, 2019. Accepted: July 05, 2019.

Abstract

Purpose - The relationship between multinationality and performance has become a hot topic in academic circles and is very important for multinational firms, especially for Chinese multinational firms, who need more experience to enter the international market. Given this background, this paper attempts to figure out the importance of multinationality to China's firm performance and to explore whether the Four-stage Theory can also be applied to China's firms.

Research design, data, and methodology - We employ the panel data of 435 multinational firms from 2008 to 2017 chosen from China's A-shares to conduct an empirical analysis by using a fixed-effects model. In the paper, the performance is represented by ROA (return on assets), treated as a dependent variable, and multinationality is represented by FSTS (foreign sales/total sales), treated as an independent variable.

Results - We find that the performance first decreases then rises, then falls down, and rises again in the end. Hence there is a W-shaped relationship between the multinationality of the Chinese manufacturing industries and firm performance, proving that the four-stage theory is also applicable to Chinese multinational firms.

Conclusions - These empirical results can provide some advice for policymakers to improve the firm performance such as reducing the logistics cost of multinationality.

Keywords: Multinationality, Firm Performance, Four-stage Theory, W-shaped Relationship, Logistics Cost.

JEL Classifications: C33, L22, L25.

1. Introduction

Nowadays, multinational firms are considering the entire world as one market. On the other hand , multinationality is a corporate strategy that provides sustainable growth. So, the world's largest multinational, international, and new businesses are seeking new market opportunities in the new world along with sustainable growth. However, there has not been a full consensus on the definition of internationalization in academic circles. In general, an enterprise's internationalization could be defined from these three viewpoints: overseas operation, ownership of overseas assets, management style and strategy, and whether the structure would accept internationalized guidance. For the overseas expansion of enterprises, there is research on these two aspects of academic circles. One is based on the ROE, ROA, and other performance indicators of the accounting relationship, on the other hand, there is a discussion on the multinationality and value of enterprises. There are some contradictory results in the research mentioned above.

From the empirical study, we find different contributions and recommendations about multinationality and firm performance (M-P). From the internationalization theory, we find that organizations gradually increase their foreign involvement by considering home-foreign countries as different factors and experienced the company's growth as linear and nonlinear over the different stages. Various researchers have dedicated much effort and time to illustrate the M-P situation. From the view of resource-based, knowledge-based, and location-based advantages,

* First Author, Doctoral Student, Department of International Trade, Chonbuk National University, South Korea. E-mail: wurenhongbini@163.com
** Corresponding Author, Doctoral Student, Department of International Trade, Chonbuk National University, South Korea. E-mail: 1293647581@jbnu.ac.kr
*** Associate Professor, Department of Management, Hajee Mohammed Danesh Science and Technology University, Dinajpur-5200. Bangladesh. E-mail: shamimru@gmail.com

researchers have concluded that the relationship of M-P is positive (Lee, Kim, & Davidson, 2015). At the same time, M-P is associated with huge uncertainty and ambiguity, which has turned the relationship into a negative (Singla & George, 2013). Empirical studies also observe the U-shaped relationship and inverted U-shaped relationship of M-P (Berry & Kaul, 2016; Grant, Matousek, Meyer, & Tzeremes, 2017; Li,Miller, Eden, & Hitt, 2012; Singh, Gaur, & Schmid, 2010). A significant number of researchers have concluded that the M-P relationship is an S-curve (Rugman & Oh, 2010; Oh & Contractor, 2014). From the empirical study, a surprising M-P relationship has been found as an M-curve among the top multinationals in response to multinationality and firm performance (Ferraris, Bresciani, & Del Giudice, 2016).

The study attempts to address the multinationality-performance relationship in two ways. First, we aim to develop further understandings of multinationality and performance, and to address a better understanding to the stream of literature referring to the M-P relationship, by using a relevant sample of Chinese multinational enterprises. Second, we will test whether the four-stage theoretical model is suitable for Chinese multinational firms. However, our research work would go forward to the international business literature by following some steps. First, unlike to the previous studies of the relationship of M-P that are heavily based on the samples from super-developed economies, we address this issue based on the Chinese economy, which is the largest developing country in the world. Second, we aim to enlarge on the different outcomes of previous literature regarding this relationship and to consider the opinions about what is known that are relevant to academic and managerial activities.

Our paper can be assembled into six sections. First, the purpose of this paper. Second, “Review of the theory and empirical studies” which contains a details observation of the literature of the theory and theoretical results on the relationship between M-P. Third, “Multinationality of Chinese firms and Hypothesis development” based on theoretical development. Fourth, the section of “Research Design” pertains operative factors of the research which outlines the estimation of model and measurement of multinationality. Fifth, “Results and outcomes” will address the empirical outcomes from the different analytical tools adopted in the study. Sixth, “Discussions and conclusions” this section contains the overall discussions and summarizations of the study.

2. Review of the Theory and Empirical Studies

Empirical studies have found that multinationality has been associated with both benefits and costs of a firm. If benefits are greater than the costs, the firm experience is positive; conversely, if costs are greater than benefits, the firm experience is negative in its performance. Actually, the association of costs and benefits in international business heavily depend on the stage of internationalization. We find a twofold relationship between M-P: liner and curvilinear (Knight & Liesch, 2016). In the linear relationship, previous studies report both positive and negative linear relationships between M-P. For the curvilinear relationship, previous studies report U-shaped, inverted U-shaped, S-shaped, and M-shaped relationships resulting from the incremental costs and profits of internationalization. The M-P relationship does not always show the same pattern; it differs with the multinationalization stage and cost-effectiveness. However, those cannot be treated as ambiguous; rather, these results confirm the three-stage model of M-P by (Kim, 2014).

2.1. Positive and Negative Linear Relationship of M-P

Many empirical studies support the benefits of multinationality as based on internationalization theory, Dunning’s electric paradigm, and the resource-based view of the firm. Historical analysis suggests that the performance of the firm is positively correlated with its multinationality (Lee et al., 2015). There are many reasons why multinationality improves firm performances. In the international business literature, firms are increasing firm-specific advantages (FSAs) across borders (Rugman, Verbeke, & Yuan, 2011), minimizing risks by international diversification, and acquiring benefits from economies of scale and scope. This means that one unit of multinationalization results in one unit of increase in a firm’s performance, because of multinationality, a firm’s performance will increase at a diminishing rate. Thus, most of the scholars believe that M-P has a positive relationship.

On the other hand, there are also many researchers who highlight the additional costs associated with doing business in the foreign market because of the liability of foreignness (Singla & George, 2013). In addition, it underestimates the manager’s ability to handle the liability of foreignness (LOF) as an agent running the foreign subsidiaries. Whenever the foreign subsidies are operated by an agent, the firms might lose control over these subsidiaries. To clarify these inverse relationships, one unit of multinationalization has one unit of negative effect on firm performance. Therefore, these scholars believe that there is a negative relationship between M-P.

2.2. U-shaped and Inverted U-shaped Relationship of M-P

The empirical study provides some researchers (Berry& Kaul, 2016; Grant et al., 2017) who have proved that M-P shows a non-linear (U-shaped) relationship. Their arguments are that, at the beginning stage of multinationality, firms face value losses, and when they become accustomed to the

international market, firm's value increases and the performance curve shows a U shape. So, firms will gain performance when they adjust to the foreign market environment. However, the U-shaped model may not apply because of gaining knowledge in dealing with the challenges of multinationality and reducing the liability of foreignness. During the initial stages of multinationalization, a firm's performance covers all associated costs, which leads a firm's positive performance initially, and because of the increased international transactions, multinational firms again face value losses, which indicates an inverted U-shaped curve of performance (Li et al., 2012; Singh et al., 2010). Here the logic is that managerial experience with a complex environment tends to master product diversification, which leads to maintaining the organizational knowledge whose ultimate effect is favorable to firm performance. Thus, the curve initially shows a positive slope and then becomes negative. Wang and He (2019) find the same ideas.

2.3. S-shaped Relationship of M-P

Oh and Contractor (2014) investigate the relationship between M-P by an S-curve model. Several researchers provide more evidence for the three-stage model of M-P (Kim, 2014; Rugman & Oh, 2010). At the first stage, because of unfamiliar foreign-market conditions, the liability of the foreignness, and higher uncertainty, firms face negative returns, which shows a U-shaped relationship (Rugman & Oh, 2010). During the multinationalization at the beginning, the organization faces higher learning costs. At the second stage, firms are getting benefits from economies of scale, which leads to a positive slope. At the final stage, further excessive multinationalization, which goes beyond the optimal level of capability, leads to a negative slope again.

2.4. M-shaped and Inverted M-shaped Relationship of M-P

In considering a long period of time, a surprising M-P relationship has been found in empirical analysis. Almodóvar and Rugman (2012) argue that there is an M-curve or inverted M-curve (four-stage) model of M-P for the world's largest multinational corporations. The logic is that top multinationals have a different performance from the other mid-level multinationals. Firms gain classical multinational benefits at the first stage, like an exercise of global market power and market familiarity, which leads to a positive slope of M-P. Then at a second stage, firms face intra-regional LOF and additional costs that lead the slope to be negative. At the third stage, multinationality benefits from arbitrage, new regional firm-specific advantages, and cross-subsidization, which leads the slope to be positive. At the fourth stage, firms face problems from being multinational beyond their capabilities and the so-called inter-regional liability of foreignness (LOF), which leads the performance curve to again be negative. And finally, from the four stages, the model becomes an M-shaped relationship of M-P.

On the other hand, an inverted M-shaped M-P relationship was also suggested by Ferraris et al. (2016). Intra-regional LOF, LOO, and higher learning cost leads the M-P relationship to be negative initially, then acquires the multinationality advantages, and new regional FSAs (Nguyuen, 2016) lead the M-P relationship to a positive slope. At the third stage, the so-called inter-regional LOF and overmultinationality lead the M-P relationship to be negative, and finally, the higher competency over global customization (Almodovar, 2012) facilitates the development of global FSAs and leads the M-P relationship to be positive again. All above previous literature on the link between M-P are summarized in <Table 1>.

Table1: Previous literature on the link between M-P

Relationships	Author(s) and year	Firm performance	Multinationality
Positive	Lee et al. (2015)	Stock price	MI(FSTS+FATA+SUB+NAT)
Negative	Singla and George (2013)	ROA	DOI
U-shaped	Berry and Kaul (2016)	ROA	Internationalization index
	Grant et al. (2017)	Nonparametirc frontier analysis	
Inverted U-shaped	Li et al. (2012)	ROA	International diversity
	Singh et al. (2010)	ROA	Product diversification
	Oh and Contractor (2014)	Tobin's Q/ROS/ROA	Multinationality
	Kim (2014)	Stock price	MI(FSTS+FATA+SUB+NAT)
	Rugman and Oh (2010)	Tobin's Q	FSTS
M-shaped	Almodóvar and Rugman (2012)	ROS	DOI
W-shaped	Almodóvar (2012)	ROS	DOI
	Ferraris et al. (2016)	ROS	FSTS

Note: ROA: return on assets; ROS: return on sales; DOI: degree of internationalization; FSTS: foreign sales/total sales; FATA: foreign assets/total assets; SUB: subsidiaries/maximum number of subsidiaries in each year's sample; NAT: nations/maximum number of nations in which subsidiaries operate in each year's sample.

3. Multinationality of China's Firms and Hypothesis of This Study

3.1. Multinationality of China's Firms

Since the previous researches mainly focus on developed countries, whereas, the history of Chinese multinational enterprises is relatively short, there are not many researches on it. Seen from academic research in recent years, the research by Chinese scholars on multinational enterprises could be divided into two sides. The first side is the research on the financial performance of Chinese enterprises after the oversea merging and acquisition. Chen and Tan (2012) show that the relationship of M-P greatly depends on whether the multinational enterprises would be in the mainland of China, within Asia, or out of Asia. The multinational enterprises in the mainland of China could have maximal benefit. The effect would still be positive and obvious, even though the reverse causality effect is under consideration. With the data of Chinese manufacturing enterprises from 2001 to 2007, Xiao, Jeong, Moon, Chung, and Chung (2013) could find that the S-shape M-P relationship is suitable for Chinese enterprises. Furthermore, the relationship between multinational enterprises and their performances could be studied by various methods and for different industries. On the contrary, the multinationality would have a positive effect on the performance when it comes to a higher level, which is a U-shaped curve of the effect of multinationality on performance. Similarly, in Chinese academic circles, some scholars find that the relationship between diversified performance and degree should be an inverted U-shape. However, the relationship between two parties should depend on the enterprises' choice of diversification strategy and resource basis. However, some find that the M-P relationship of Chinese manufacturing enterprises should be in an obvious horizontal S-shape relation. The diversification of relevant products imposes a positive effect on the adjustment of performance and diversification, but the marketing resource of enterprises could offset the negative effect. Zhou (2018) could find through empirical analysis that the M-P relationship of manufacturing enterprises should be a W-shape in the overall samples, should be a W-shape in small enterprises, and should be U-shaped in big enterprises.

3.2. Hypothesis

Chinese firms, as typical latecomer firms in emerging economies, should be in the primary or the middle stage according to normal hypotheses and there is less possibility to have overinternationalization. Based on previous researches, it can be found that there would be a liability of newness and of foreignness in the primary stage of internalization. The influence of multinational character on the performance would be negative, but would turn positive until there is enough internationalization experience. So, what is the liability of newness and the liability of foreignness? In the process of setting up a new branch, multinational firms would face two major challenges, paying tuition fee and not being acclimatized, so there would be extra costs compared with the firms in the host country: these are the liability of newness and the foreign business costs. Liability of Newness emphasizes that a new organization should input extra costs compared with the existing firms when it enters certain new markets, including the experiential learning, internal management-system building, external social-relations building, and changing consumer preferences. As the Liability of Foreignness that is born by firms, which means all extra costs of firms doing oversea market business compared with local firms of the host country. It could be analyzed in terms of four aspects: traffic and communication, coordination problems caused by space distance, the strangeness of the local environment, and the lack of foundation. As foreign firms, they lack the legitimacy of the host country and also face economic nationalism as well as the investment-policy limitation of the home country. The liability of newness and the liability of foreignness would put the firms into a bad competitive position when they do foreign direct investment, and the newly established overseas branch could not gain the high efficiency of business activities that the local firms have in the host country, so the international returns would be reduced, and the participation in overseas expansion would harm the performance improvement of the firms. On the other hand, there is endogenous dynamism in the liability of newness and the liability of foreignness. Along with the situation that multinational firms have been part of host companies to develop all kinds of connections, values, and behaviors that are in line with the host country's institutional requirements, such liabilities would be reduced, even gone. In the third stage, they tend to expand the transnational distance and depth with the increase of firms' international earnings. Firms face significant costs because they have to adjust to the new cultural and institutional environments, and these costs will be greater than for a lower psychic distance county. The firms will deteriorate because of the lack of market-related resources and capabilities to meet the new requirements and the rising coordination costs. In the fourth stage, firms are expected to develop long-term network relationships characterized by commitment and trust (Graves & Shan, 2014), because its characteristic culture of commitment and long-term orientation could help it to successfully implement an international strategy in the long term. According to the analysis mentioned above, the paper would raise the hypothesis:

H1: There is also a W-shape between multinationality and firm performance of Chinese firms, and it conforms to the four-stage theoretical model.

4. Data and Research Model

4.1. Data

We chose and used panel data of multinational firms listed in A-share in China from 2008 to 2017 to study the relationship between multinationality and performance. All the data have been acquired from over 3500 firms at first; we screened them layer by layer, finally leaving 435 manufacturing firms' data for the study because of the lack of data for many projects, in which we obtained 4350 observed values of the balance panel data for the duration of 2008-2017, most of which come from the WIND database of China that remains the leading provider of financial data integration in China, serving more than 90% of the financial companies in the Chinese market. In addition, part of the data came from the CSMAR database, which provides information widely used in various research reports and academic papers. Our emphasis lies in whether the multinational development of Chinese manufacturing firms conforms to the four-stage development model.

4.2. Research Model

In order to provide sufficient research effectiveness and comparability, we conduct several tests to choose the best statistical moles. After a lot of tests, the OLS was used to estimate the equation. The econometric model for individual i=1, 2, .., N, which is observed at several time periods t=1, 2, .., T, is as follows:

$$ROA_{i,t} = \beta_0 + \beta_1 AGE_{i,t} + \beta_2 FIRMSIZE_{i,t} + \beta_3 DEBTAR_{i,t} + \beta_4 FSTS_{i,t} + \beta_5 FSTS_{i,t}^2 + \beta_6 FSTS_{i,t}^3 + \beta_7 FSTS_{i,t}^4 + \delta_{i,t}$$

Where, ROA = return on assets, AGE=firm age, FIRMSIZE = log sales of a firm, DEBTAR = debt asset ratio of a firm, FSTS= foreign sales/total sales of a firm, $\delta_{i,t}$ = other information not revealed in the financial statements of firm i at t.

Dependent Variable: According to He's research in 2018, in this paper, ROA is a suitable measure of the benefits of multinationality through economies of scale and will be chosen as the dependent variable (Shin, Mendoza, Hawkins, & Choi, 2017; Kirca, Hult, Roth, Cavusgil, Perryy, Akdeniz, & Miller, 2011). ROA reflects the ability of firm to gain profit with all changeable assets and fixed assets. Generally speaking, the average value of total asset at the beginning of the period and that at the end of the period of firm are measured by the percentage divided by the net profit of firm.

Independent Variable: FSTS is chosen in the paper as the measurement of the level of multinationality. On one hand, it is the most common index to have a direct reflection of the multinationality of firm, so many western scholars and researches also use the index. On the other hand, most of the listed firms report the overseas income and total revenue in the financial statement for better data availability, and the FSTS could be calculated easily with these two indexes.

Control variable:

Age: Firm age is measured by the number of years since the incorporation of the firm (Chen & Tan, 2012).

Firmsize: The scale of firms is chosen to be a control variable for its influence on the performance of firms. The variable has been widely used and proved in many kinds of literatures (Lee et al., 2015).

DEBTAR (total debt to total assets): It is a leverage ratio that reflects the proportional relationship of debt relative to assets. This indicator can be used to compare the leverage ratios of different firms.

5. Empirical Results Analysis

<Table 2> presents the descriptive statistics of the variables used in this paper. In the sample extracted from firms, the mean of ROA, AGE, FIRMSIZE, DEBTAR and FSTS are 0.057, 21.031, 21.645, 0.411, and 0.385, respectively, of which the mean of FSTS, representing the multinationality of firms, remains 0.385, that is to say, the average sales of overseas markets account for nearly 40% of the average total revenue of sample firms, indicating that the revenue of overseas markets has become one of the main sources of firms' income. Besides, the average age of Chinese firms is 21 years, so they are still in the early stage of development compared with the multinational firms in developed countries such as Europe and the United States. Although the multinational firms in China are still under development, whether they have the same characteristic as the multinational firms in developed countries is also a fundamental question needing studying. Table 2 also lists the Pearson correlation coefficients of variables in the model estimation. We can see from the results that the correlation coefficients between the dependent variables ROA and the control variables AGE, FIRMSIZE and DEBTAR are - 0.174, - 0.295, and - 0.242, respectively, and they are all at a significance level of 1%, which demonstrates that there is a negative relationship between the three control variables and the dependent variables. We need to further discuss what is the actual situation in the following empirical model. However, the correlation coefficient between ROA (dependent variable) and FSTS (independent variable) is 0.070, and within a significance level of 1%, which shows that there is a positive correlation between ROA and FSTS. Whether it is only a pure positive correlation is the core issue of this study, as will be discussed in the model. From the whole correlation-coefficient matrix, only the correlation coefficients between AGE and FSTS, $FSTS^2$, $FSTS^3$, and $FSTS^4$ are not

Table 2: Descriptive Statistics and Correlation Test

	Mean	Std. Dev.	ROA	AGE	FIRMSIZE	DEBTAR	FSTS	$FSTS^2$	$FSTS^3$	$FSTS^4$
ROA	0.057	0.071	1.000							
AGE	21.031	4.702	-0.174***	1.000						
FIRMSIZE	21.645	1.299	-0.295***	0.181***	1.000					
DEBTAR	0.411	0.200	-0.242***	0.189***	0.388***	1.000				
FSTS	0.385	0.232	0.070***	0.023	-0.144***	-0.107***	1.000			
FSTS2	0.202	0.227	0.078***	0.017	-0.127***	-0.092***	0.967***	1.000		
FSTS3	0.129	0.204	0.077***	0.011	-0.109***	-0.079***	0.901***	0.980***	1.000	
FSTS4	0.092	0.187	0.073***	0.005	-0.094***	-0.069***	0.827***	0.935***	0.986***	1.000

Note: ROA: return on assets; AGE: firm age; FIRMSIZE:logsalesofafirm; DEBTAR: debt asset ratio of a firm; FSTS: the ratio of foreign sales to total sales; *, **, and *** indicate the significance level at 0.10, 0.05, and 0.01, respectively.

significant. The actual relationship will be discussed in the following model. In other correlation-coefficient relationships, except for the correlation coefficients of FSTS with its square, cubic, and quadratic, the other coefficients are basically below 0.5, and all of them are at a significance level of 1%. This shows that the correlation is very low, meeting the conditions of the model.

What's more, multi-collinearity has always been a major problem in empirical analysis, which shows that there is more or less of a relationship between model variables and therefore may increase the variance of regression coefficients, which leaves the coefficients unstable and difficult to explain. Empirical research and judgment methods show that there is multi-collinearity if the VIF of independent variables in the model is over 10. In addition, the reciprocal of VIF is named Tolerance. The value of Tolerance ranges from 0 to 1. The smaller the Tolerance is, the stronger the collinearity will be. Owing to the close relationship between VIF and TOL, they can be used interchangeably. As seen in Table 3, the VIF values of the independent variables in the model are basically about 1. These results lead to the conclusion that the regression estimates predicted in Table 3 do not deviate from the existence of severe multiple collinearities.

Table 3: Collinearity Test

Variable	VIF	Tolerance
FIRMSIZE	1.210	0.826
DEBTAR	1.200	0.832
AGE	1.060	0.948
FSTS	1.030	0.973
Mean VIF	1.120	0.895

<Table 4> shows the results of empirical regression analysis. Model 1 is a basic linear model with only control variables. It is consistent with the results of the correlation-coefficient analysis in Table 1. There is a negative relationship between control variables and ROA.

Table 4: Results of regression analysis

Variables	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
C	0.376*** (21.135)	0.369*** (20.293)	0.512*** (19.382)	0.542*** (20.563)	0.536*** (19.803)
AGE	-0.002*** (-7.377)	-0.002*** (-7.473)	-0.002*** (-4.084)	-0.002*** (-4.039)	-0.002*** (-4.119)
FIRMSIZE	-0.012*** (-14.331)	-0.012*** (-14.017)	-0.019*** (-15.515)	-0.019*** (-16.392)	-0.019*** (-15.576)
DEBTAR	-0.048*** (-8.654)	-0.048*** (-8.524)	-0.018*** (-2.911)	-0.017** (-2.672)	-0.019*** (-2.966)
FSTS		0.008* (1.833)	-0.069*** (-3.583)	-0.200*** (-4.643)	-0.319*** (-4.047)
FSTS2			0.078*** (4.000)	0.387*** (4.097)	0.849*** (3.176)
FSTS3				-0.202*** (-3.303)	-0.849** (-2.413)
FSTS4					0.2940** (1.873)
F-statistic	192.399	145.218	70.074	64.860	52.616
R^2	0.117	0.117	0.121	0.123	0.125
Observations	4350	4350	4350	4350	4350

Note: *, **, and *** indicate the significance level at 0.10, 0.05, and 0.01, respectively. ( ) indicates the T-statistics.

Models 2, 3, 4, and 5 are used to test hypothesis 1, by adding multinational linear items in model 2, adding multinational square terms in model 3, adding cubic terms inmodel 4, and adding quadratic terms in model 5. From models 2 to 5, we find out that the results of the model were significant; the F values are 145.218, 70.074, 64.860, and 52.616, respectively. From model 2, the coefficient in front of FSTS was positive (0.008, $p < 0.01$), which was consistent with the relationship between ROA and FSTS in Table 1. However, the coefficient before FSTS in the curve model 3 becomes -0.069, and the coefficients before FSTS

in curve models 4 and 5 are negative and tend to be stable. The coefficients before $FSTS^2$ are 0.078, 0.387 and 0.849 from model 3 to model 5, respectively, and are positive, all at a significance level of 1%. Although the coefficient of $FSTS^3$ changes from - 0.202 in model 4 to - 0.849 in model 5, the symbols remained the same. In model 5, we find that the coefficient of FSTS is -0.319, the coefficient of $FSTS^2$ is 0.849, that of FSTS3 is -0.489, and the coefficient of $FSTS^4$ is 0.2940 at last, which are all at a significant level, showing a process of first decreasing, then rising, then descending before the last rising, which is what we call a W-shape (Tsai, 2014), indicating the W-relationship between the degree of multinationality of the data set and firm performance. It supports our hypothesis 1.

6. Conclusion

The main purpose of this paper is to find out the relationship between multinationality of firms in a developing county, China, and their performance, exploring whether the Four-stage Theory can also be applied to these firms. We find that there is a W-shaped relationship between the multinationality of Chinese manufacturing industries and firm performance, proving that the four-stage theory is also applicable to Chinese multinational firms. In the first stage, because of the lack of market experience and capital sources, multinational manufacturing firms in China need time and resources to establish these subsidiaries. There is a negative correlation between multinationality and firm performance because of factors such as learning costs. In the second stage, the multinationality has a positive relationship with a firm performance by using specific advantages to acquire the ability of experience, learning, and innovation. In the third stage, the firms tend to expand the transnational distance and depth with the increase of international earnings. The performance of multinational firms has deteriorated because of the lack of market-related resources and capabilities to meet the new requirements and the rising coordination costs at the moment the multinationality decreases. In the fourth stage, performance has been stabilized, thus showing a positive trend resulting from the accumulation of capabilities and the re-allocation of international markets.

Three major contributions to the research of M-P in China have been made in this study. First, since China is a developing country, the history of multinationality of firms in China is fairly short, and the development of multinational firms in this country also shows the four-stage theory presented by transnational corporations in developed countries, thus expanding ranges of the research on the relationship between multinationality of Chinese firms and firm performance.

Second, we find that there is a W-type correlation between the transnational nature of Chinese firms and their performance. So the country also encourages firms to actively spread out, participate in international market competition, implement OFDI or cross-border mergers and acquisitions or integration, expand sales, etc. Also , policymakers should provide assistance for small firms in developing long-term internationalization strategies (such as international market knowledge and finance) to internationalize small firms in the first and third stages and help them reach the second and fourth stages.

Third, the firms' managers should have a long-term view of multinationality. It means that they should focus on the W-curve long-term view and make different strategies in different stages. They should engage in a continuous learning process and overcome the inter-regional LOF. Meanwhile, in a different stage, they should have different a sense of competition to overcome the risk.

This study has not been able to get rid of the following limitations in spite of careful research design and repeated rigorous empirical studies. There may be specification bias errors, that is, the specific estimation results formed by the specific premises in this study.

① Limitation of Samples from Home-countries. We chose panel data of listed multinational companies from 2008 to 2017 in this paper. Although most of the previous studies have a similar timespan, we did so to make the empirical results increasingly credible and comparable. However, one of the biggest remaining problems is that the sample targets in this paper are Chinese multinational firms, China is an emerging developing country; so Chinese firms may not be able to accurately represent their counterparts in other emerging economies because of the special national advantages of Chinese firms and other factors, as well as the significant changes in the institutional environment and the effect of cross-economy (Li et al., 2012; Luo & Wang, 2011). Therefore, findings in this study need careful analyzing to allow for the fact that the empirical results ignore the heterogeneity among emerging economies; that is to say, the research results of Chinese multinational firms may not be universal and may not be applied to other emerging markets, which depends on the further analysis of large sample data of multinational firms so as to draw a universally verified conclusion.

② Bias in Sample Selections. Samples selected in this paper are all from Chinese multinational firms listed on Shanghai and Shenzhen Stock Exchanges and make use of the manufacturing industry implement empirical researches. Nevertheless, there is a transparent omission, in that many large multinational firms, such as Huawei, are not listed; so, this paper does not involve these large unlisted multinational firms, aiming at multinationality and performance of non-listed firms. The validity study cannot exclude the difference between the results of this study. Moreover, some small and unlisted SMEs with a very high transnational proportion may also have conclusions inconsistent with the

results of this study. Therefore, the bias in sample selection in this paper reduces the credibility of its results to a certain degree.

Although samples selected and used in this paper only used FSTS (instead of FATA, FETE. and SUB, representing the proportion of overseas employees to total employees, and the proportion of overseas subsidiaries to total subsidiaries), it somehow does not fully reflect the transnational degree of firms, because of its monotony. So, in the future research, we should adopt more comprehensive data to measure the multinationality. Especially, we should consider the country's political differences, history, culture, economic development. Meanwhile, we can study the relationship of M-P from other perspective, like the logistics and management.

References

Almodóvar, P. (2012). The international performance of standardizing and customizing Spanish firms: The M curve relationships. *Multinational Business Review*, *20*(4), 306-330.

Berry, H., & Kaul, A. (2016). Replicating the multinationality-performance relationship: Is there an S-curve? *Strategic Management Journal*, *37*(11), 2275-2290.

Chen, S., & Tan, H. (2012). Region effects in the internationalization–performance relationship in Chinese firms. *Journal of world business*, *47*(1), 73-80.

Ferraris, A. (2014). Rethinking the literature on "multiple embeddedness" and subsidiary-specific advantages. *Multinational Business Review*, *22*(1), 15-33.

Ferraris, A., Bresciani, S., & Del Giudice, M. (2016). International diversification and firm performance: a four-stage model. *EuroMed Journal of Business*, *11*(3), 362-375.

Grant, K., Matousek, R., Meyer, M., & Tzeremes, N. G. (2017). A research note on multinationality and firm performance: Nonparametric frontier analysis. *International Journal of Operations & Production Management*, *37*(10), 1408-1424.

Graves, C., & Shan, Y. G. (2014). An empirical analysis of the effect of internationalization on the performance of unlisted family and nonfamily firms in Australia. *Family Business Review*, *27*(2), 142-160.

He, Y. (2018). A Study on the Profitability of the Commercial Bank in Terms of Interest Rate Marketization: Based on FMOLS Model. *The International Journal of Industrial Distribution & Business, 9*(8), 41-50.

Kirca, A. H., Hult, G. T. M., Roth, K., Cavusgil, S. T., Perryy, M. Z., Akdeniz, M. B., & Miller, J. C. (2011). Firm-specific assets, multinationality, and financial performance: A meta-analytic review and theoretical integration. *Academy of management journal*, *54*(1), 47-72.

Knight, G. A., & Liesch, P. W. (2016). Internationalization: From incremental to born global. *Journal of World Business*, *51*(1), 93-102.

Lee, S., Kim, M., & Davidson III, W. N. (2015). Value Relevance of Multinationality: Evidence from Korean Firms. *Journal of International Financial Management & Accounting*, *26*(2), 111-149.

Li, D., Miller, S. R., Eden, L., & Hitt, M. A. (2012). The impact of rule of law on market value creation for local alliance partners in BRIC countries. *Journal of International Management*, *18*(4), 305-321.

Li, L., Qian, G., & Qian, Z. (2012). The performance of small and medium-sized technology-based enterprises: Do product diversity and international diversity matter? *International Business Review*, *21*(5), 941-956.

Luo, Y., Sun, J., & Wang, S. L. (2011). Comparative strategic management: An emergent field in international management. *Journal of international management*, *17*(3), 190-200.

Oh, C. H., & Contractor, F. (2014). A regional perspective on multinational expansion strategies: Reconsidering the three-stage paradigm. *British Journal of Management*, *25*(2014), S42-S59. https://doi.org/10.1111/1467-8551.12019

Rugman, A.M. (1976). Risk reduction by international diversification. *Journal of International Business Studies* 7(2), 75-80.

Rugman, A. M., & Oh, C. H. (2010). Does the regional nature of multinationals affect the multinationality and performance relationship? *International Business Review*, *19*(5), 479-488.

Rugman, A., Verbeke, A., & Yuan, W. (2011). Re-conceptualizing Bartlett and Ghoshal's classification of national subsidiary roles in the multinational enterprise. *Journal of Management studies*, *48*(2), 253-277.

Singh, D. A., Gaur, A. S., & Schmid, F. P. (2010). Corporate diversification, TMT experience, and performance. *Management International Review*, *50*(1), 35-56.

Singla, C., & George, R. (2013). Internationalization and performance: A contextual analysis of Indian firms. *Journal of Business Research*, *66*(12), 2500-2506.

Shin, J., Mendoza, X., Hawkins, M. A., & Choi, C. (2017). The relationship between multinationality and performance: Knowledge-intensive vs. capital-intensive service micro-multinational enterprises. *International Business Review*, *26*(5), 867-880.

Tsai, H. T. (2014). Moderators on international diversification of advanced emerging market firms. *Journal of Business Research*, *67*(6), 1243-1248

Xiao, S. S., Jeong, I., Moon, J. J., Chung, C. C., & Chung, J. (2013). Internationalization and performance

of firms in China: Moderating effects of governance structure and the degree of centralized control. *Journal of International Management*, *19*(2), 118-137.

Wang, J., & He, Y. (2019). A Study on the Transnational Performance of China's Enterprises. *Journal of Economics, Marketing and Management, 7*(1), 1-14.

Zhou, C. (2018). Internationalization and performance: evidence from Chinese firms. *Chinese Management Studies*, *12*(1), 19-34.