Research Article

Competitive repertoire of Chinese horizontal firms: Influence of coordination

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ABSTRACT

In western countries, organizational coordination is regarded as a root for better competitive advantage, by supporting firm to have more differentiated competitive actions. This paper, by empirically testing Chinese firms from three industries, found out that coordination has a negative moderating effect between complexity of repertoire and performance. The conclusion enriched the analysis framework of competitive action (or repertoire) decision, and brought better understanding of firm competitive behavior in emerging economies.

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INTRODUCTION

Since China joining in WTO, more and more MNEs have entered Chinese domestic market. Suth Chinese firms are facing bigger and bigger threats and increasingly eager to enhance international competitiveness. Chinese firms need build their own specific advantages on the basis of national advantage of China, like market scale, labor costs, et al, with horizontal integration with merger or investment[1]. However, during horizontal integration, Chinese firms are among a big group of local firms. Most of these local firms don't have advantage in market competition but can build market barrier by regional policies and institution, so they mostly not expending their business beyond the authorities of local government and diversified in multiple business. So these local firms cause competitive threats to horizontal integrating firms in long term. Therefore, Chinese horizontal integrating firms (the focal firms) are mainly in a competition structure called "two-line battle", simultaneously competing against MNEs and bunch of local firms. Such complex competition needs a special organizational mechanism.

Till now few discuss about the effects of organizational management and structure on competitive actions. Chen and Hambrick[2]figured out that the size of a firm can affect the speed of action implementation. Lamberg et al[3] built a theoretical framework, which indicated that organizational resources like managerial pattern and structure have influence on attacking and replying actions of firms. Nevertheless, Lamberg et al didn't deeply explore the affection mechanism of organizational resources on competitive actions and repertoire. This paper tried to explore the influence of organizational coordination on competitive repertoire of horizontal integrating firms, as to supplement the analysis framework of competitive behavior.

2. Literature Background
Competitive Repertoire. Competitive repertoire refers to "set of actions pursued by an organization to attract, serve, and keep customers"[4]. In the studies of competitive repertoire, the complexity of repertoire, also called competitive complexity, is one of the character which mostly interested[5]. The competitive complexity refers to the

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scope of variety and fields[6] of actions implemented by a firm. If a firm adopt competitive actions from different dimensions (such as R&D, marketing, production, and logistics), then its repertoire could be complex[7]. Previous researches emphasized the importance of competitive complexity to performance[6]. However, few researches discuss the organizational mechanism behind the complex repertoires. Competitive actions are on the basis of specific resources, thus complex repertoire means spreading resources and capabilities along the value chain, instead of gathering and integrating. Thus what organizational mechanism could support a firm to implement a repertoire with high complexity, is still a un-know question.

Coordination in Horizontal Integration. While a firm growing horizontally, with its organizational boundary expending, it will inevitably facing a new emerging managerial question: how to allocate resources inside the new organizational boundary, and increase the operation effectiveness[8,9]. Researchers introduced coordination as an important factor of organizational management[10,11]. The coordination refers to reasonable allocation of inner resources of a firm, and the information communication and sharing among branch offices and departments. The coordination presents the operation of a firm, centralizing materials purchasing, marketing dealing, and qualities of products and services cause higher coordination, while decentralized the operation cause a lower coordination. Therefore, higher coordination means optimizing the operation system, and enhance the capabilities of organizational learning and communicating[12]. Meanwhile, coordination is also built on the basis of a centralized and scientific network of supple chain and marketing channel.

3. Hypothesis
Competitive Complexity. High complexity of competitive repertoire require the focal firm implement each action and switch to another rapidly, so that it can dispense the following and expectation by its competitors[6]. This will draw some scholars to believe that competitive complexity have positive impact to performance[3]. But in Chinese transition economy, horizontal integrating firms are in "two-line battle", facing two types of competitors. For the strategic resources and capabilities of the two types of competitors various, horizontal integrating firms have to simultaneously allocate and apply different strategic resources to make forbearance with resources similarity with these two type of competitors[13]. And also, integrating horizontal firms have to adopt rapid and diversified actions to build advantages to both types of competitor, to avoid re-actions by MNEs and local firms with speed and innovation. Both the resources base and the action character lead the horizontal integrating firm to increase competitive complexity when interacting with MNEs and local firms.
H1: Competitive complexity has positive effects on performance.
Effect of Coordination. Theoretically, emphasizing coordination of organization means boosting the effectiveness of resources allocation[8,9], reducing the managerial and learning costs, and enhancing capabilities of innovation. However, coordination also means centralizing resources in operation system, which could damage the possibilities and qualities of repertoire which has various types of competitive actions. Instead, increasing organizational coordination will drive focal firm to compete rely on one singe competitive action which is high innovative, such as the Iphone series products by Apple. If facing one single (type of) competitor(s), single type of action or multiple types of action might have similar effects in competition interaction. But when a focal firm is facing two types of competitors, especially when it were in the "two-line battle" caused by institutional context, centralizing its resources is less possible to create advantages in both lines.
H2: Coordination has negative effect between competitive complexity and performance.

4. Research Design
4.1 Data Gathering
Since content analysis is the major method for coding competitive action data[2], This paper also applied content analysis for gathering and coding data about competitive actions and repertoire. This paper chose firms listed in Shanghai or(and) Shenzhen stock market as sample. For specifically study the horizontal integrating firms, 26 firms from air-conditioner, real-estate, and automobile industries are chosen, with their annual reports and media reports since 2001 to 2012 (265 samples of each firm in each year) gathered, coded, and analyzed.

Following the former studies[5], this paper categorized competitive actions into 8 types: investment or merger, cooperation and allies, proposing new products, proposing new technology, opening new store or entering new market, changing organizational structure or marketing system, changing prices, and taking public relationship activities.

4.2 Variables Measurement
Dependent Variable. Following Chen[2], this paper chose ROA as the index of dependent variable, the performance. To take over the industrial difference, this paper standardized the value of ROA.
Independent Variable. Competitive complexity. This paper follows Ferrier's[6] measure for complexity, as function(1):

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$$Com = 1 / \sum_a \left(N_a / NT_L \right)^2 \tag{1}$$

Whereas N_a refers to the frequency of competitive action a in a certain year, and NT_L refers to the sum of frequencies of all competitive actions in the year.

Moderating Variables. Following some scholars, this paper measures coordination with the proportion of related party transactions[8,9], the proportion materials purchased from top-5 suppliers, and the proportion of sales revenue to top-5 dealers (customers)[9]. This paper calculated the entropy weighted value of these three measures.

To acknowledge, all measurement of competitive complexity and coordination are categorized according to the means (valued 1 if lower than means, and value 2 if higher than means) of the sample in each industry.

Control Variables. Because competitive behavior has strong association with resources and previous growth of the firm[2], this paper chose the time of firm built, and resources slack as control variables, while resources slack majorly measured by size of firm[2] and the current ratio of (proportion of current assets to current debts). Also the three control variables are standardized to avoid the industrial differences.

5. Analysis Results
This paper applied multiple linear regression model with SPSS 16.0. The results of analysis are as Table 1, 2 and 3. To ensure the validity and reliability of the variables transformed from continuous variable into 0-1 variables, an ANOVA is done to the variables of competitive complexity and coordination, as Table 2. Form Table 2, the mean square between groups of both variables are higher than the mean square inside group, with the F test are highly significant ($p < 0.001$). Thus, both the two 0-1 variables in this paper are valid. The regression results are in Table 3. Model1 and 2 are both significantly F tested, which means the regression models have good fitting degree. Moreover, Model 2 has higher R square adjusted values than Model 1, which refers all moderation effects are testified by the empirical analysis.

As Model 1, competitive complexity (FZ) have significantly ($p < 0.001$) positive effect on performance, thus H1 is accepted. As Model 2, coordination (XT) and FZ have significantly ($p < 0.05$) negative interacting effects on performance, thus H2 is accepted.

DISCUSSION AND CONCLUSION

Western scholars found that, competitive complexity has positive effect on performance[6]. This paper, while supporting them, expending their conclusion into a more complex competing situation: focal firm is facing multi-types (in strategic orientations, resources, or other) of firms. Therefore, facing multiple types of competitors, complexity of competitive repertoire should be an effective way for focal firm.

A few researchers indirectly argued that, coordination would enlarge the impact of competitive complexity on performance[12]. However, this paper did not support their idea. This paper study the competitive complexity under special situation of focal firm facing multiple types of competitors because of Chinese market fragmentation. In "two-line battle", Chinese horizontal integrating firm has to adopt different competitive actions basing on different resources and capabilities. Therefore, less coordination, instead of more coordination, is supporting firm implementing different types (or say opposite ways) of actions in one repertoire.

The major mission of competitive dynamics research is to reveal the characters and rules of dynamics competitive behavior. Under the dynamic competition, decision of competitive action has to figure out the question "which action can be effectively, rapidly, and intensively implemented", excepting for "whether and when to start an action". Scholars proposed four dimensional factors for answering the question: market commodity which indicates the market structure between focal firm and competitor, resources similarity which indicates the resources comparison between focal firm and competitor, top management team which represents the cognition and decision mode of focal firm[4], and organizational resources[6] which indicates the basis of action implementation of focal firm. This paper, on the basis of previous researches, forwardly revealed the interrelationship between coordination and competitive repertoire. Focal firm needs to choose suitable repertoire to fit for its operation system and organizational coordination. If the competitors are with similar resources and capabilities, higher coordination should be help more complexity of repertoire; but if the competitors are in multiple types of resources, then less complexity of repertoire would be more effective under certain coordination.

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Table 1 Descriptive Statistics and Relative Analysis

	Number	means	S.D	1	2	3	4	5
1.Size（RS）	265	1.3485E4	17486.63	1				
2.Year（NF）	265	12.8830	5.25104	.220**	1			
3.Current Ratio（LD）	265	1.5354	.66297	-.211**	.069	1		
4.Performance（ROA）	265	3.9965	5.10867	.011	.175**	.094	1	
5.Competive Complexity（FZ）	265	2.3208	.94895	.050	.004	.038	.231**	1
7.Coordination（XT）	265	1.4981	.50094	-.181**	.001	.220**	.020	-.210**

**.significant of correlation is at the level of 0.01(two-tail)
*. significant of correlation is at the level of 0.05(two-tail)

Table 2 ANOVA

FZ	quadratic sum	S.D	mean square	F value	Significant
Between groups	3.139	1	3.139	206.229	0.000
Inside group	4.004	263	0.015		
XT					
Between groups	31.808	1	31.808	6.893	0.009
Inside group	1213.675	263	4.615		

Table 3 Multiple Linear Regression

	Model1-a		Model1-b
（Constant）	(-1.394)	(1.258)	(-2.976)**
Control	-	-	-
Independent			
FZ	0.229***		0.715***
	(3.859)		(3.565)
Moderating variable			
XT		-0.072	0.431**
		(-1.160)	(2.626)
Interaction			
XT*FZ			-0.559*
			(-2.481)
R^2	0.090	0.042	0.113
R^2 adjusted	0.076	0.028	0.093
△R^2 adjusted			0.017
F value	6.397***	2.87*	6.498***

*** significant of regression is at the level of 0.001 (two-tail).
**. significant of regression is at the level of 0.01 (two-tail)
*. significant of regression is at the level of 0.05 (two-tail)

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