



# Journal of Applied Sciences

ISSN 1812-5654

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## Applicability of Mktor Scale for Market Orientation Construct in Chinese Transition Economies

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**Abstract:** In transition economies, firms have to change the previous organization and governance structure and rapidly and effectively respond to the market through market orientation. Therefore, Market Orientation (MO) has attracted much attention from scholars of marketing and strategic management, but little research has attempted to examine the validity and applicability of MO model and its scale in a transition economy and the developing countries with China in particular. Thus, the aim of this paper is to demonstrate the applicability of the market orientation scale (referred to as MKTOR) in transitional Chinese economy developed by Narver and Slater (1990) in western countries. This research collects 1415 enterprise's data in seven provinces in China to analyze the reliability and validity of this scale using SPSS13.0 and LISREL8.7, the results show the Cronbach alpha, translation validity, construct validity (including convergent validity, discriminant validity) and criterion-related validity of MKTOR scale are acceptable in the Chinese context, which in turn indicates the scale developed in developed countries can be applicable and extended to the Chinese turbulent transitional economic country.

**Key words:** Market orientation scale, applicability, transition economies, reliability, validity

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### INTRODUCTION

In transition economies, existing and previous institutions and rules still play significant roles, so the current economy is influenced not only by market rules, but also by previous economic systems. Therefore, in the multi-transition phase which is quite complex and full of various contradictions and uncertainties, in order to adapt to new market environment, firms have to change the previous organization and governance structure and rapidly and effectively respond to the market through market orientation.

Since 1990s, Market Orientation (MO) has attracted much attention from scholars of marketing and strategic management (Lai *et al.*, 2009). And there is a continual assertion that market orientation is positively associated with operational performance of the firm (e.g., Li and Zhou, 2010), but systematic researches for a further understanding of the MO construct have just started recently based on the significant works of Kohli and Jaworski (1990) and Narver and Slater (1990). Although, the research relevant to MO is flourishing increasingly, most of the existing studies on MO have been undertaken in the context of western countries like the US (Tse *et al.*, 2003). Virtually little research has attempted to examine the validity and applicability of MO model and its scale in a transition economy and the developing countries with

China in particular. Since Chinese economy exhibits a high degree of environmental turbulence, it is worth addressing whether the existing MO construct is applicable to the different and turbulent environment. Moreover, even though Tse *et al.* (2003) employed sample data from 573 firms engaging in China trade in Hong Kong to test the correlational relationship between MO and company performance, but there are the different policy and economic systems between Hong Kong and Chinese mainland and Hong Kong cannot be considered the transition economy. Sin *et al.* (2004) has examined the applicability of Narver and Slater (1990) market orientation model across different economies, but they mainly assessed the scale properties of market orientation in planned and market economies. Zhou *et al.* (2009) also tested the applicability of a model showing the relationship between Market Orientation (MO) and a set of organizational antecedents in an emerging market, but they employed a set of modified MARKOR scales and take the state-controlled NPOs as the empirical object.

With this in mind, this research is designed to examine the applicability of Narver and Slater (1990) MO model in Chinese transitional business environment. In other words, the main objective of our research is to re-examine the reliability and validity of MKTOR scale in the Chinese marketing context systematically.

**THEORETICAL BACKGROUND**

Marketing orientation, or MO, is considered to be activities involved in implementing the idea of marketing. Up to now, there is no consistent and recognized definition of MO. Based on previous theoretical and empirical research literature, two significant approaches to measuring market orientation emerged in the early 1990s. Kohli and Jarworski (1990) conceptualized market orientation as the acquisition of, dissemination of and organization-wide response to, market intelligence or information. Their approach was further improved by Kohli *et al.* (1995) and Jaworski and Kohli (1993, 1996), who developed a scale for measuring MO (namely MARKOR). This scale initially consists of 32 items, which are then refined to 20 ones. Among them 6 items are related to market intelligence, 5 items related to dissemination and 9 items related to responsiveness. In parallel, Narver and Slater (1990) and Slater and Narver (1994) developed market orientation as a unidimensional construct (a single scale is known as MKTOR, 14 items) with three underlying behavioral components (customer orientation, competitor orientation and interfunctional coordination).

Both the Kohli and Jaworski 1990 and Narver and Slater (1990) methods have been tested and improved in numerous studies and many scholars in transitional China also used MKTOR scale in the context of developed economies to measure the level of market orientation. However, a Chinese transition economy is on behalf of a new empircial enviroment, is this scale suite for this business context?

Even though with deepening of the process of internationalization has caused to a speculation that marketing theory and model might well be transportable across national and cultural borders (Buzzell, 1966), but Zhang (2003) also holds that marketing theory and model can cross national and cultural boundaries, but the so-called “category fallacy” will arise from direct application of MO model and measuring method to other cultures without any test or validation. In order to improve the research accuracy and validation, when we apply the MO construct and development measuring scale originating in developed countries to China in transitional period, it is necessary to re-assess its applicability, namely reliability and validity, which is the essential issue to be addressed in this research.

**METHODOLOGY**

**Data collection:** According to the methods above, the data in the study were collected in two phases. First,

Table 1: Information of respondents in the first stage

Province	Case No.	Distributing industries
Hubei province	15	Brewing, metallurgy, electronic, housing, communication, automobile
Henan province mining	11	Retailing, Coking, mineral resource and processing, machine manufacturing, energy
Zhejiang province	14	Tobacco, boiler manufacturing, retailing, shoe manufacturing, port and sea-route management
Beijing city	8	Communication, petroleum, housing, gas, municipal administration
Shanghai city	5	Housing management, electric power, tap water
Guangdong province	13	Communication, newspapering, insurance, clothing, banking
Guangxi municipality	7	Machine manufacturing, IT, ship checking, hospital, housing

in-depth case studies were conducted to collect information concerning market orientation, marketing implementation and business performance. Basic information of the sample interviewed is shown in Table 1 below.

The second phase of this research, which was quantitative in nature, was completed by MBA and EMBA students advised by the first author who sent questionnaires to other enterprises in spare time taking advantage of their own relationship network to enlarge sample collection amount, which is a so-called snowball way. The sample of 3000 firms was surveyed and a total of 1820 responses had been received, the response rate is 60.7%, of which there are 1415 valid questionnaires and the valid rate is 77.7 %. The reason that may account for the very high proportion of receiving questionnaires is the guanxi (or relationship) of MBA and EMBA students. According to industry statistics, the valid sample enterprises above covered multiple industries. In terms of enterprise scale, large, medium and small-sized enterprises account for 5%, 26% and 69% respectively. About enterprise ownership, both state-owned and non-state owned are incorporated, occupying 18% and 72% respectively, with state-owned ones mainly distributed in electric power, communication, energy and machine manufacturing industries and so on.

**Construct measurement:** The market orientation scale developed in the United States by Narver and Slater (1990) serves as the basis for measuring MO of Chinese enterprises in transitional period. MO in this scale is measured by three key indicators, namely customer orientation, competitor orientation and interfunctional coordination. Each one decomposed into several items, presented to the respondents by Livert’s seven-point approach, where 1= Strongly disagree and 7 = Strongly agree. And we translated the items of MKTOR scale into Chinese according to the Chinese

language habits and then back-translated to ensure that the meanings of all 14 items of the questionnaire in Chinese version is about the same as the original English version.

Two methods in the existing literature can be used to calculate overall MO level. One is the approach adopted by Narver and Slater (1990). MO is calculated first on three separate scales and then arithmetic mean of the three scales, is obtained, which is MO score of each enterprise. Reliability tests on each subscale produce Cronbach beyond 0.7, indicating each scale is reliable separately (Nunnally, 1967). The averaging across the three separate subscales means equal weight given to each of three underlying components. However, Deng and Dart (1994) suggest that different weightings should be given to each component, especially more weighting given to customer orientation than the other two dimensions.

The other method is employed by Greenley (1995), who averages across the original scale directly rather than using subscales as intermediaries. However, in the course of averaging, he gives weight by the following methods: for instance, among all the 14 items in Narver and Slater (1990) MO scale, 6 items deal with customer orientation, whereas 4 items target at the other two components respectively, thus he automatically gives 6/14 weight to the customer orientation items rather than 1/3.

To test the applicability of MKTOR in the transition economy of China, the two methods will be combined in this research to collect data on the 14 items in the original scale at first and then analyze the three separate components and the whole scale.

**RESULTS**

**Reliability of the MKTOR scale:** This study conducts reliability analysis using SPSS13.0 based on the valid sample. First of all, three underlying scales are deemed as

separate subscales, with the results of our reliability analysis shown in Table 2.

As shown in the Table 2, reliability coefficients of the subscales of customer orientation and interfunctional coordination are above 0.8 and that of competitor orientation subscale is lower than 0.7, which suggests that acceptable alpha values can be produced by using separated scales to measure competitor orientation and coordination between sectors orientation, but unacceptable alpha value is generated from measuring competitor orientation. This indicates it is not completely reliable to use separated scales to measure market orientation. Thus, Greenley (1995) procedure and method are used to calculate and analyze the reliability of the overall MO scale, with the results shown in Table 3.

It can be seen from the Table 3 that the alpha reliability coefficient of the overall scale is 0.92 and the item-to-total correlation coefficients are all over 0.3, which are statistically significant, so it can be assume that MKTOR scales are very consistent internally.

**Validity of the MKTOR scale:** This research will further test the validity of the MKTOR scale from the three aspects, namely translation validity, construct validity and criterion-related validity:

- **Translation validity:** To judge this validity, it is generally necessary to test the content validity and face validity
- **Content validity analysis:** This testing of content validity is difficult to be objective, which is a major problem in content validity test. To address this disadvantage in subjective evaluation, scale designers can use “scale assessment method” to

**Table 2: Results of reliability analysis of three separate subscales**

Subscale	Cronbach’s alpha
Customer orientation (6 items)	0.831
Competitor orientation (4 items)	0.680
Interfunctional coordination (4 items)	0.898
Overall	0.923

**Table 3: Results of reliability analysis for MO scale**

Items	Item-to-total correlation	Alpha if item removed***	Cronbach alpha for scale
Our objectives and strategies are driven by the creation of customer satisfaction	0.6160	0.8101	0.923
Our commitment to serving customer needs is closely monitored	0.6159	0.8255	
Competitive strategies are based on understanding customer needs	0.6700	0.8055	
Business strategies are driven by increasing value for customers	0.6925	0.8115	
Customer satisfaction is frequently assessed	0.6653	0.8189	
close attention is given to after-sales service	0.6817	0.8117	
Sales people share information about competitors	0.4495	0.8339	
We achieve rapid response to competitors’ action	0.6506	0.8224	
Customers are targeted when we have an opportunity for competitive advantage	0.5924	0.8056	
Top managers regularly discuss the competitors’ strengths and weaknesses	0.6615	0.8112	
Top management regularly visits important or potential customers	0.6237	0.8233	
information about customers is freely communicated throughout the firm	0.6463	0.8246	
Business functions are integrate to serve target market’s need	0.6267	0.8341	
Our managers understand how employee can contribute to value for customer	0.5438	0.8193	

\*\*\*Correlation is significant at the 0.001 level

Table 4: Correlation matrix of three components of MO

	Customer orientation	Competitor orientation	Interfunctional coordination
Customer orientation	1		
Competitor orientation	0.773(**)(0.05) <sup>a</sup>	1	
Interfunctional coordination	0.727(**)(0.03)	0.790(**)(0.06)	1

\*\*Correlation is significant at the 0.01 level (2-tailed). <sup>a</sup>The number in the bracket is SE

verify content validity, that is, to invite more than two experts to score each item of the questionnaire and then analyze assessment results by statistical method, such as “agreement percentage” and other indicators. The higher the score of agreement percentage is, the better the content validity of a scale has.

This study is designed to test the applicability of this scale in different cultural backgrounds without changing its content, but it is still worth judging whether the translated items are representative in China in transitional period. For this purpose, 4 doctors in marketing and strategic management are invited to score 14 items of MKTOR scale and the result shows that the agreement percentage is higher than 75%

**Face validity analysis:** Most interviewers report when the 14 items of MKTOR were presented to respondents and in follow-up discussions with them, there are no difficulties for all the respondents in the stage of quantitative analysis, which at least can indicate MKTOR retains good face validity when being introduced into the changing China in transitional period

Taking the results of content validity and face validity into consideration, it suggests that the MKTOR scale of Narver and Slater (1990) has high translation validity.

**Construct validity:** It is measured by testing convergent validity and discriminant validity.

**Convergent validity analysis:** Two methods will be used to test the convergent validity of MKTOR scale.

The first method is examining the correlation matrix of the three components of MKTOR scale of MO. When calculating correlations, each component’s score can be computed as per the weight set by Greenley (1995) and then correlation analysis is made by using the value, the result is shown in Table 4.

As shown in Table 4, all the correlation coefficients exceed 0.72 at the significant level of 0.01, which indicates there is a strong correlation between these three components of MO, further shows they are convergent on a common construct, thereby providing evidence for convergent validity.

The second method to assess convergent validity of a measure is to use confirmatory factor analysis to gauge the fit of the proposed measurement model to the

covariance or correlation data at hand (Phillips and Bagozzi, 1986). For the convenience of comparison, we firstly establish a model M<sub>0</sub>, which hypothesizing that there is no correlation between the three components of MO (customer orientation, competitor orientation and interfunctional coordination are referred to as CU, CO and IN respectively for short). Then another model M<sub>1</sub> is established, assuming that three components in MO construct are correlated to a certain degree. The two models are shown in Fig. 1.

With LISREL8.7, the fit indexes of two model’s goodness are shown in Table 5.

Seen from the fit indexes shown in Table 5, apparently model M<sub>1</sub> out performs M<sub>0</sub>. In addition, Table 6 presents the relevant parameter estimates and t-statistics.

Three component’s parameter estimates are statistically significant at the significant level of 0.01, which implies that they are strongly correlated. Hence, both fit index and parameter estimate can indicate that three components are correlated, further proving the convergence of measuring MO by three components, namely customer orientation, competitor orientation and coordination between sectors.

**Discriminant validity analysis:** More recently, it has been assessed by two methods. One is computing the correlation coefficient of relevant components. If 1 is not included in 95% confidence interval of the coefficient value, we can consider the components have acceptable discriminant validity (Anderson and Gerbing, 1988). Secondly, this is done by comparing the goodness-of-fit statistics for two measurement models, one model is hypothesized the correlation coefficient of two components be 1 (marked constraint model) and the other is modeled the components as without such a constraint (marked unconstrained mode). And then  $\chi^2$  of the model is computed, if the difference of  $\chi^2$  of the two models is significant, which shows the two components can be discriminate. This research assesses and judges the discriminant validity of MKTOR in Chinese context by using the two methods.

As shown in Table 4, correlation coefficient of three components are 0.727~0.790, within the 95% confidence intervals ( $r \pm 2S.E.$ ), all of which do not include 1 respectively. This indicates the three components of MKTOR have certain discriminant validity. And then

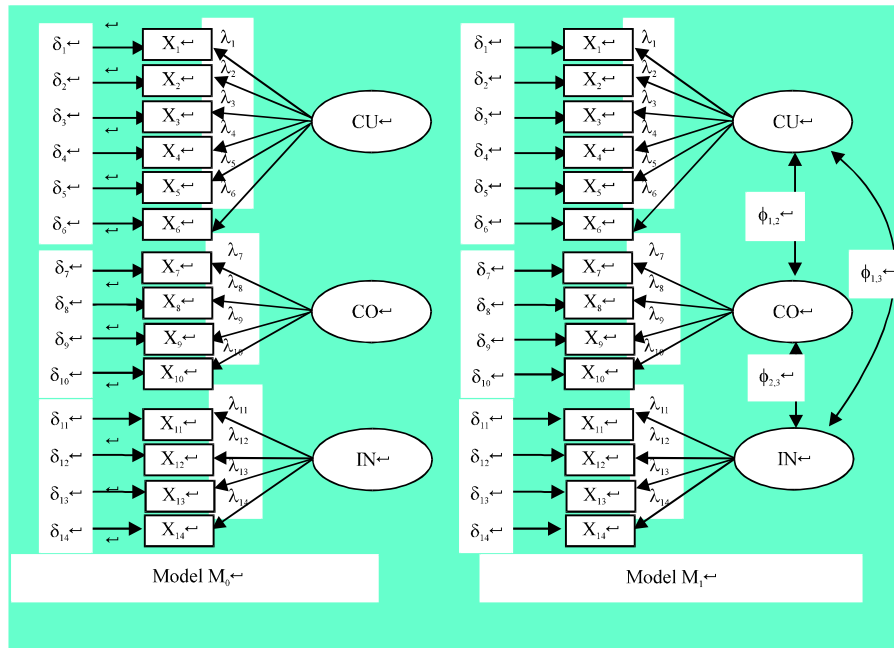


Fig. 1: Confirmatory factor analysis

Table 5: Goodness of fit indexes of CFA for model M<sub>0</sub> and M<sub>1</sub>

	$\chi^2$	df	P	RMSEA
M <sub>0</sub>	1547.05	77	0.000	0.19
M <sub>1</sub>	426.03	74	0.000	0.10

Table 6: Parameter estimates and test statistics for the model M<sub>1</sub>

Parameters	Parameter estimates	t-value*
$\phi_{1,2}$	0.75	12.86
$\phi_{2,3}$	0.72	12.05
$\phi_{1,3}$	0.69	11.64

\*All are significant beyond the 0.01 level

further examine their discriminant validity through computing  $\chi^2$  and the  $\chi^2$  difference values for the constrained and unconstrained model was found to be 16.54 with 3 df, which is significant at the level of 5%. This finding implies that the unconstrained model has a significantly better fit than the constrained model. In sum, the above analysis clearly suggests that the MKTOR has acceptable discriminant validity in the transitional Chinese context.

**Criterion-related validity:** Generally speaking, criterion-related validity can be divided into concurrent validity and predictive validity and both validities can represent the relationship between scale score and criterion, the only difference is the different time of “examination conducting” and “criterion collecting”. Concurrent validity refers to the time points of “examination conducting” and “criterion collecting” are the same, while for predictive validity the measuring should be conducted firstly, only after a while could

criterion data be collected. For the subject of this research is the scale of market orientation and the market is changing all the time with the management environment, competition and strategies, in other words, it is changing with time, then the scale of market orientation is not adapted to the testing of predictive validity. Thus, this study tested the scale only by concurrent validity to weigh the criterion validity of MO construct.

In testing, the criterion “comparing with enterprises, your company has a high level of MO” is added to this research, then the total score of 14 items of MO scale are computed according to weight computing method using by Greenley (1995), finally using SPSS13.0 to calculate the correlation coefficient of criterion and scale score is 0.86, this indicates there is a significant correlation between them ( $p < 0.01$ ), which in turn demonstrates this scale has acceptable criterion-related validity.

### CONCLUSION

This research provides a systematical test of the applicability of western construct to a Chinese business environment with the different political, economic and cultural system and mechanism. From what have been analyzed above, the results have demonstrated that the overall Narver and Slater (1990) MKTOR scale is both valid and reliable as a measure of market orientation for

China in transitional period. Hence, although the scale was originated in the US at the level of a strategic business unit, the findings of our study show that the MKTOR scale appears to measure well the construct of MO in the Chinese cultural and transitional economic context.

A number of avenues of research implications are suggested by the above findings.

For the academicians, firstly, strictly speaking, different Chinese districts have different networking, culture, social and economic conditions, so one cannot say that MKTOR is applicable to transitional economies in general if it is not applicable in different Chinese districts. Therefore, the MO scale should be tested effectively in other areas or districts in China as well. Of course, it still should be verified and validated in other transitional markets using the method in this research. For example, testing in the markets of Southeast Asia, South America, Baltic Sea and Africa would provide further evidences of the generalizability and robustness of the scale. Further attention could be also addressed to the use of the overall scale or its separate subcomponents. Secondly, the approaches in this research can be extended and spread to test the applicability of other constructs in transitional countries.

The results of this study are not only related to academicians. From the perspective of a marketing practitioner engaged Chinese economy, the results of our study should be helpful to them in how to cooperate with or compete against Chinese enterprises, especially the counterparts in western nations. Up to now, although the economic development and growth phenomena of Mainland China, Hong Kong and Taiwan, which have attracted worldwide attention in recent years, no significant work has been conducted in a Chinese environment on the best business strategy. Thus, some serious empirical evidences fail to be found for a lot of marketing myths in the Chinese marketing practices (Tse *et al.*, 2003). However, the results of this research show the impacts of market orientation on business performance in a Chinese business environment. Therefore, the results and processes provide reference and foundation to uncover the mysterious veil of some myths in transitional Chinese market for the marketing practitioner.

Although, this study is revealing to both the marketing academicians and practitioners, it still has some limitations. Firstly, the study is verified in other based on responses to a survey targeted at one respondent, CEO of each company. Whereas the CEO

should be in a good position to judge market orientation, so the score of its MO maybe higher than the actual level. Secondly, the respondents cannot cover all industries and regions in China, which could influence the results of this study. Thirdly, in the development process of MO, the differences of region and industry may exert great influence on MO's performance, although in this study industry and region are considered, their moderating roles have not been analyzed. Therefore, further study should improve the approaches of panel data collection to minimize the subjective influence and more regions and industries should be interviewed and analyzed to ensure the reliability and validity of the testing results.

#### ACKNOWLEDGMENT

This study was conducted with support from Natural Science Foundation of China (71202050), Humanities and Social Science Foundation of Chinese MOE People's Republic of China (11YJC630061) and Foundation of China Postdoctor (2012M511621), so we would like to thank them.

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