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ENVIRONMENTAL UNCERTAINTY, MARKET-ORIENTATION STRATEGY, AND ORGANIZATIONAL STRUCTURE IN CHINA'S APPAREL RETAIL STORES

Eun Jin Hwang*, Ph. D.

*Indiana University of Pennsylvania, Human Development and Environmental Studies,
Associate Professor*

Indiana, PA 15705

USA

eun.hwang@iup.edu

Marjorie J. T. Norton, Ph. D.

Virginia Tech, Department of Apparel, Housing and Resource Management, Professor

Blacksburg, VA 24061

USA

nortonm@vt.edu

Abstract

The research purpose was to examine relationships among Chinese apparel retail stores' market-orientation (MO) strategies, organizational structure, and environmental uncertainty as perceived by the managers. A total of 227 store managers completed a questionnaire. Data indicated that Chinese apparel retailers have implemented MO strategies to some extent under organizational structures that are fairly formalized and centralized and even more specialized. After factor analysis, we tested three hypotheses using structural equation modeling. We found that two aspects of environmental uncertainty significantly affect all four MO strategies and, in three of the four tested cases, structural specialization and formalization. We also found significant effects of formalization on one MO strategy and of specialization on three MO strategies.

Keywords: Market orientation, Organizational structure, Apparel retailing, China

Topic Groups: Industry, area or region specific studies, Business strategy, Change management and organizational development

JEL Classification: M30, L81, M10

INTRODUCTION

Business managers today make decisions under environmental uncertainty arising from changes such as rapid globalization, volatile customer expectations, and escalating competition. The winds of change are strong in China, whose dynamic economy is opening progressively to foreign competition, posting fast expanding consumer incomes, and transforming from a command economy to a market economy with firms pushed to reconfigure their organizations and develop new skills, especially in marketing, to meet market demands (Kshetri, 2009). This raises questions about relationships among environmental uncertainty, organizational structure, and market orientation in Chinese companies. The present exploratory study addresses those questions with respect to Chinese apparel retailers. Our objectives were to determine (a) the effects of environmental uncertainty on such retailers' organizational structure and market-orientation strategies; and (b) effects of the organizational structure on the market-orientation strategies. Previous research on these issues primarily concerns Western non-retail businesses.

Market orientation (MO) can help firms achieve superior performance through understanding and responding to customer needs (Kirca et al., 2005). Despondé and Webster (1989) defined MO as an organizational culture with shared values and beliefs that put customers first in business planning. Kohli and Jaworski (1990) identified the basic behavioral MO strategies: generation of market intelligence relevant to current and future customer needs; organization-wide dissemination of the intelligence; and the design and implementation of responses to the intelligence. Kohli and Jaworski also proposed factors (e.g., organizational structure, market turbulence, competitive intensity) that may influence MO and relationships with other variables.

MO research is extensive (Kirca et al., 2005). Manufacturers have dominated the samples, but retailers have received increasing attention. Most studies exclude apparel retailers or include them in broad retail samples without reporting product-specific results (e.g., Elg, 2003; Harris, 2000). Elg (2007) argued that MO is more complex in retailing than manufacturing because (a) retailers consider product ranges, services, and facilities in deciding offerings; (b) store design and operation incorporate numerous variables such as product presentation and checkout service; (c) store location affects visibility and relationships with local markets; and (d) retailer-supplier relationships affect the quality, prices, timeliness, and brand image of retailers' products. Azuma (2004) emphasized MO uniqueness in fashion retailing: The currently prevalent short product cycles cause short-term MO horizons, and competitive advantage in the turbulent, fiercely competitive fashion market depends on innovatively monitoring and copying competitors. Such fierce competition exists in apparel retailing in China today (Guild & Hu, 2011).

The samples in MO research on retailing represent large to small firms and various countries. Many issues are examined. Some involve internal MO (the use of marketing techniques to align organizational services with customer needs) and effects on financial performance and customer satisfaction (e.g., Lings & Greenley, 2010). Others involving firms' inner workings relative to MO include organizational size, structure (e.g., centralization), systems (e.g., manager, employee behavior), and innovation (e.g., Harris, 2000; Sternquist et al., 2010). Scholars have also analyzed retailer-supplier MO relationships (e.g., Chang et al., 2011; Elg, 2003, 2007; Sternquist et al., 2010) as well as MO effects on financial performance, customer retention, and product quality and success (e.g., Hwang & Norton, 2010; Medina & Rufin, 2009). Only the work on relationships between MO and organizational structure directly relates to our study. The studies of Chinese retailing (Chang et al., 2011; Sternquist

et al., 2000, 2010) indicate MO adoption, but address neither apparel retailing nor relationships examined in our study.

With China's retail market opening steadily to global competition and its increasing emphasis on domestic consumption, Chinese retailers realize the need to modernize, innovate, and raise standards. Although Chinese companies have quickly learned MO from foreign firms (Cao & Hansen, 2006), they tend to be weak in marketing and MO (Kshetri, 2009).

THEORETICAL FRAMEWORK

Our theoretical framework for examining relationships among environmental uncertainty, organizational structure, and MO strategies in Chinese apparel retailing (see Figure 1) is based on contingency theory and the resource-based view in strategic management theory, a theory combination Pertusa-Ortega et al. (2010) found useful in analyzing environment–structure–strategy relationships. Contingency theory holds that contingency factors determine the characteristics of organizational structure (Pertusa-Ortega et al., 2010). Contingency factors also influence the strategies chosen. Organizational structure refers to a firm's conceptual and functional framework and its resource configuration; strategy refers to the firm's vital missions, goals to be achieved, and principal uses of its resources (Hall & Saias, 1980). The focal strategies in our study are the previously indicated behavioral MO strategies.

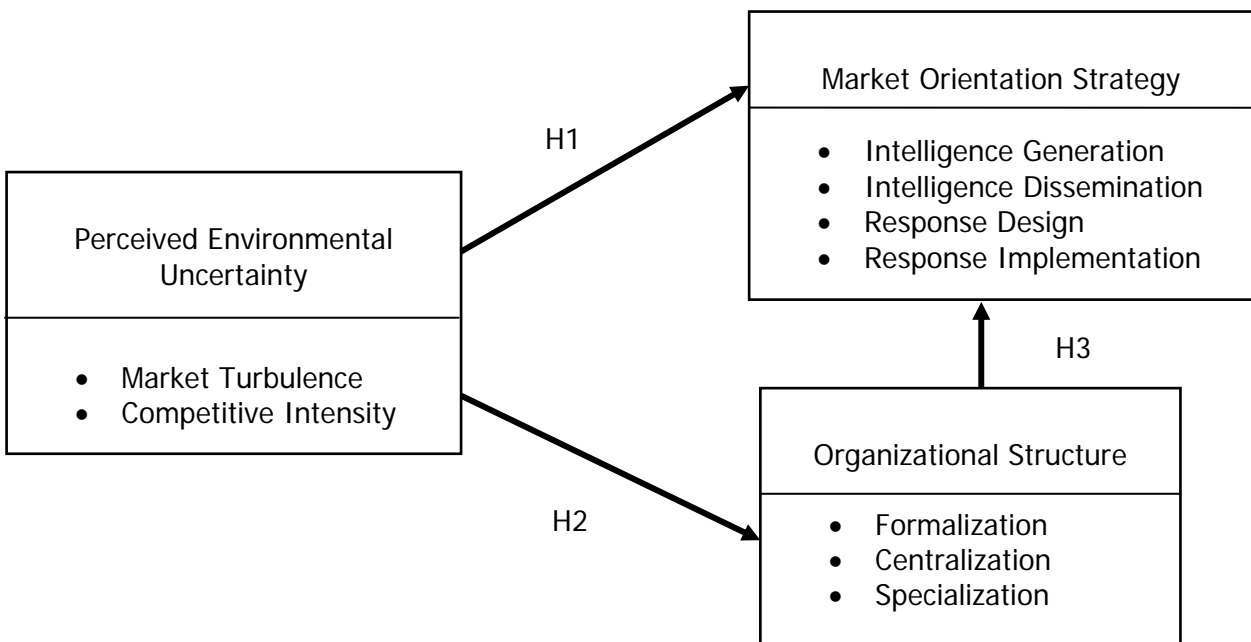
Theorists (e.g., Kohli & Jaworski, 1990) have posited associations between MO and three dimensions of organizational structure: formalization, centralization, and specialization. Formalization is the extent to which rules define authority relations, communication, norms, sanctions, and procedures (Hall et al., 1967). Centralization involves the degree of delegation of decision-making authority within an organization (Aiken & Hage, 1968). Specialization, or departmentalization, refers to the number of departments into which organizational activities are separated (Jaworski & Kohli, 1993). Scholars have also delineated mechanistic and organic structures. The former has vertical hierarchies and interaction, limited decentralization, many departments, procedures, and rules, and considerable formalization. Rich horizontal integration and less rigidly defined methods, duties, and power describe organic structure (Marsden et al., 1994). Chinese firms reportedly have hierarchical, or mechanistic, cultures (Kirca & Hult, 2009). Contingency factors that affect organizational structure and strategy include the complex of conditions in the external environment. Those we consider are competitive intensity and market turbulence in Chinese apparel retailing. Environmental uncertainty from these two factors influences MO and relationships with other variables (Kohli & Jaworski, 1990).

LITERATURE REVIEW AND HYPOTHESES

To remain competitive in uncertain and dynamic environments, firms must anticipate changes in their external marketing environments and stand ready to adapt business activities accordingly (Johnston et al., 2008). Davis et al. (1991) found that perceived environmental turbulence is positively related to a firm's MO level. Kohli and Jaworski (1990) noted that the more competitive a firm's operating environment, the more likely the firm will be market oriented. Diamantopoulos and Hart (1993) found competitive intensity to be a key environmental variable because customers in highly competitive business environments have several options for satisfying their needs and wants. In such environments, firms tend to increase their sensitivity and responsiveness to customer needs (Lusch & Laczniak, 1987). Pelham and Wilson (1996) found, however, that market dynamism and competitive intensity

do not affect the degree of MO in small firms, implying that MO is not critical under some conditions. In addition, factors acting as antecedents to MO in one country may neither facilitate nor inhibit a firm's MO in others (Burgess & Nyajeka, 2006). On the basis of the literature, we hypothesized (H1) positive effects of perceived market turbulence and competitive intensity on each behavioral MO strategy (i.e., intelligence generation and dissemination and response design and implementation), partly due to the argument by Davis et al. (1991) that environmental changes not only create need for entrepreneurial and market orientations, but also drive them.

Figure 1: Theoretical Framework



Researchers investigating organizational adaptation from a contingency perspective have found that the external environment has considerable influence on organizational structure. (e.g., see Hrebiniak & Snow, 1980). Several studies (e.g., Huber & Daft, 1987) have shown that environmental uncertainty affects organizational structure and processes. The level of environmental turbulence is critical to firms' survival and growth. Unfavorable and hostile environments challenge even those firms with flexible structures and responsiveness to environmental changes (Covin & Slevin, 1989). On the basis of the literature, we hypothesized (H2) that perceived market turbulence and competitive intensity has positive effects on each dimension of organizational structure (i.e., formalization, centralization, and specialization).

Kohli and Jaworski (1990) found that centralization deters MO, but formalization and departmentalization have no impact on MO. Burgess and Nyaheka's (2006) research showed no effect of formalization, departmentalization, or centralization on MO. Harris (2000) found a negative relationship between MO and centralization in retailing. Matsuno et al. (2002) found a negative effect of departmentalization, but no effect of formalization and centralization, on MO. Deshpandé and Zaltman (1982) posited an inverse relation between utilization of market intelligence and both formalization and centralization. Stampfl (1978) proposed that both formalization and centralization are inversely related to a firm's responsiveness. Drawing on numerous studies, Zaltman et al. (1973) argued that

formalization, specialization, and centralization may all be inversely related to intelligence generation and dissemination as well as response design, but positively related to response implementation. On the basis of the literature, we hypothesized (H3) that each of the three dimensions of organizational structure (i.e., formalization, centralization, and specialization) negatively affects the intelligence generation and dissemination and response design MO behavioral strategies, but positively affects response implementation.

SAMPLING AND DATA COLLECTION

Primary data collection was accomplished with a self-administered questionnaire sent to top managers of apparel retail stores in five major cities in China: Beijing, Guangzhou, Qingdao, Shenzhen, and Tianjin. We obtained permission for research with human subjects from the institutional review board at one of our universities before any data collection. A minimum of about 200 respondents was needed for the structural equation model technique used in data analysis. On the basis of previous research (e.g., Crawford-Welsch, 1990), we expected a response rate of 20-25%, a rate requiring a target sample of about 500. We sent the questionnaire and a cover letter to 500 stores drawn randomly from the China Business Directory, China Yellow Pages, White and Yellow Pages China, and China Chain Store and Franchise Association.

The questionnaire and cover letter were written in English, translated into Chinese, and back translated into English to avoid loss of meaning. The questionnaire and cover letter were sent by e-mail or by mail with postage-paid return envelopes to stores without e-mail addresses. Questionnaires could be returned by e-mail or mail. Dillman's (1978) total design method was used to increase the response rate. Two weeks after the initial mailing, a reminder postcard was sent to each store, followed by re-mailing the entire package to store managers who did not respond within two weeks of the initial mailing. The questionnaire contained scales to measure the research variables and request demographic information on respondents and their stores.

RESEARCH METHODOLOGY AND CONSTRUCT DEVELOPMENT

Two scales with four and five items respectively were used to measure perceived market turbulence and competitive intensity, with response from strongly disagree (1) to strongly agree (5). The market-turbulence items, adapted from Jaworski and Kohli (1993), addressed the perceived degree of change over time in a store's customers and their preferences or purchase criteria. The competitive-intensity items, adapted from Khandwalla (1977), addressed the perceived degree of competition in Chinese apparel retailing. Lawrence and Lorsch (1967) argued that perception of competition, not the actual level of competition, influences managers' decisions in response to their firms' operating environment. Other questionnaire items measured three dimensions of organizational structure and four MO strategies. Specialization was measured with four items adapted from Khandwalla (1974) and Pugh and Hickson (1976), each with a 5-point scale between two polar statements to complete the phrase "In general, the management philosophy in my store favors." Formalization and centralization were each measured with three items adapted from scales developed by Aiken and Hage (1968) and Ferrell and Skinner (1988), with response from strongly disagree (1) to strongly agree (5). The following MO strategies were measured with items adapted from Jaworski and Kohli (1993): intelligence generation (3 items), intelligence dissemination (5 items), and response design and implementation (3 items each), with response from strongly disagree (1) to strongly agree (5).

The preliminary questionnaire was pilot tested with 10 Chinese apparel retail store managers, 2 faculty members at a Chinese university, and 1 faculty member at a U.S. university who recommended changes to it. The changes were made before primary data collection. The data analysis and results are described in the Results section that follows.

RESULTS

Sample, Mean Scores for the Variables, and Assessment of Common Method Bias and Reliability and Validity

We received 227 completed questionnaires (45.4% response rate), mainly from presidents (53.3%), assistant managers (26.0%), and managers (20.7%). Many of the stores (50%) opened over 2007-2009, the others over 2000-2006. Most stores (67%) had less than 10 employees. The overall mean score for perceived market turbulence is 3.72; that for perceived competitive intensity is 3.91. The overall mean score for the intelligence-generation MO strategy is 3.44, that for intelligence dissemination is 3.85, that for response design is 3.88, and that for response implementation is 4.22. For organizational structure, the overall means for formalization ($m = 2.89$), centralization ($m = 2.75$), and specialization ($m = 3.54$) suggest that the structures of respondents' stores are fairly formalized and centralized and even more specialized. This picture fits the reputation of hierarchical, mechanistic structures in Chinese businesses.

Because our data are from one respondent per store, we tested for common method bias following Podsakoff and Organ (1986). Results from correlation and principal components factor analyses showed no evidence of such bias. To assess reliability, we first calculated Cronbach alpha unidimensional reliability scores for each measurement scale. Cronbach alpha value of .70 is a commonly used threshold value for acceptable reliability, although not an absolute standard; values below .70 are considered acceptable in exploratory research like ours (Fornell & Larker, 1981). We found Cronbach alphas of 0.79, 0.85, and 0.67, respectively, for the environmental-uncertainty, MO, and organizational-structure scales, indicating reasonably good reliability.

Composite reliability (CR) and convergent and discriminant validity (CV, DV) were assessed following Fornell and Larker (1981). CR values above .60 indicate acceptable reliability. The CR values we found for the MO, organizational-structure, market-turbulence, and competitive-intensity scales ranged from .62 to .95, indicating acceptable composite reliability. Average variance extracted (AVE) was used to assess CV and DV. AVE value of .50 or more indicates convergent validity. AVE values we found for the four scales ranged from .55 to .71, indicating convergent validity. DV was assessed by comparing the square root of AVE to the correlation between constructs. Discriminant validity is indicated when the square root of AVE exceeds the correlation between constructs. Results indicated discriminant validity for each of the four scales.

Factor Analysis

Exploratory factor analysis with varimax rotation was performed on the data for the two aspects of perceived environmental uncertainty, the three dimensions of organizational structure, and the four MO strategies to extract the relevant latent variables. Factor analysis was found appropriate with KMO values of .662 for environmental uncertainty, .679 for organizational structure, and .703 for MO, along with statistical significance ($p = .001$) of

each value in Bartlett's test of sphericity. Eigen value of 1 or more was the criterion for selecting extracted factors.

Results revealed two environmental-uncertainty factors. Factor 1 (competitive intensity) includes four items with Cronbach alpha of .88, 38.1% of the variance explained, and loadings from .71 to .95. Factor 2 (market turbulence) includes four items with Cronbach alpha of .68, 26.1% of the variance explained, and loadings from .50 to .94. These results are partly due to moving three items between factors and deleting one item. Four MO factors were found. Factor 1 (intelligence generation) includes two items with Cronbach alpha of .79, 13.6% of the variance explained, and loadings from .67 to .85. Factor 2 (intelligence dissemination) includes six items with Cronbach alpha of .89, 30.5% of the variance explained, and loadings from .71 to .86. Factor 3 (response design) includes three items with Cronbach alpha of .78, 15.7% of the variance explained, and loadings from .63 to .88. Factor 4 (response implementation) includes two items with Cronbach alpha of .63, 12.4% of the variance explained, and loadings from .61 to .93. These results are partly due to moving two items between factors and deleting one item.

Three organizational-structure factors were found. Factor 1 (formalization) includes four items with Cronbach alpha of .91, 39.5% of the variance explained, and loadings from .74 to .92. Factor 2 (specialization) includes three items with Cronbach alpha of .71, 18.2% of the variance explained, and loadings from .68 to .86. Factor 3 (centralization) includes only one item with 16.9% of the variance explained; thus it was no longer considered. These results are partly due to moving three items between factors and deleting two items.

Overall Fit of the Measurement Model

The overall fit of our measurement model was assessed by six absolute goodness-of-fit measures (chi square, chi square/degrees of freedom ratio, standardized root mean square residual, root mean square error of approximation, goodness-of-fit index, and goodness-of-fit index adjusted for the degrees of freedom); three incremental fit measures (normed, comparative, and incremental fit indices); and three parsimonious fit measures (parsimony goodness-of-fit, relative fit, and parsimony normed fit indices). Values found for those measures indicated that the model fits the data well and is a reasonably close approximation of the sample data. Space limitations preclude presentation of the detailed results here. The detailed results are available from the first author upon request.

Hypothesis Testing and Discussion of Results

The three hypotheses were tested using structural equation modeling (SEM) and the data as modified according to the factor analysis. SEM allows simultaneous testing of the effects of exogenous constructs on endogenous constructs and of endogenous constructs on each other, as well as relationships among exogenous constructs. Our study includes two exogenous variables, the two aspects of perceived environmental uncertainty (market turbulence, competitive intensity); six endogenous variables, the four MO strategies (intelligence generation and dissemination, response design and implementation); and two dimensions of organizational structure (formalization, specialization). The correlation matrix for all the variables indicated that 24 of the 28 correlations between the constructs were statistically significant at $p < 0.01$ or $p < 0.05$, fulfilling a pre-condition for SEM. Collinearity among the independent variables was assessed through variance inflation factors (VIF) and condition indices. The condition index for each independent variable is below 33, indicating

little or no collinearity. VIF for each independent variable is below the standard comparison score of 10, indicating no serious multicollinearity.

Table 1: Results of SEM estimation for hypothesis testing

| Dependent variables | Independent variables | Estimate | Standard error | Critical ratio | p value |
|---|-----------------------|---|----------------|----------------|-----------|
| <i>Market-orientation strategies</i> | | <i>Environmental uncertainty</i> | | | |
| Intelligence generation | Market turbulence | .769* | .127 | 6.049 | .001 |
| Intelligence dissemination | Market turbulence | .654* | .087 | 7.482 | .001 |
| Response design | Market turbulence | .328* | .086 | 3.815 | .001 |
| Response implementation | Market turbulence | .500* | .108 | 4.642 | .001 |
| Intelligence generation | Competitive intensity | -.503* | .108 | -4.669 | .001 |
| Intelligence dissemination | Competitive intensity | -.345* | .074 | -4.658 | .001 |
| Response design | Competitive intensity | .363* | .073 | 4.980 | .001 |
| Response implementation | Competitive intensity | .866* | .091 | 9.486 | .001 |
| <i>Organizational-structure dimensions</i> | | <i>Environmental uncertainty</i> | | | |
| Formalization | Market turbulence | -.161 | .062 | -2.586 | .010 |
| Specialization | Market turbulence | .880* | .057 | 15.515 | .001 |
| Formalization | Competitive intensity | -.853* | .048 | -17.944 | .001 |
| Specialization | Competitive intensity | .253* | .043 | 5.849 | .001 |
| <i>Market-orientation strategies</i> | | <i>Organizational-structure dimensions</i> | | | |
| Intelligence generation | Formalization | -.269 | .094 | -2.868 | .004 |
| Intelligence dissemination | Formalization | .102 | .065 | 1.586 | .113 |
| Response design | Formalization | .092 | .063 | 1.451 | .147 |
| Response implementation | Formalization | .325* | .080 | 4.087 | .001 |
| Intelligence generation | Specialization | -.450* | .103 | -4.372 | .001 |
| Intelligence dissemination | Specialization | .037 | .071 | .524 | .601 |
| Response design | Specialization | -.254* | .070 | -3.646 | .001 |
| Response implementation | Specialization | -.417* | .087 | -4.781 | .001 |

*Significant at $p < .001$.

SEM results do not support hypothesis 1 as stated, but each aspect of perceived environmental uncertainty had significant effects on all four MO strategies. These include the hypothesized positive effects of competitive intensity on response design and implementation, indicating that the more (less) the perceived competitive intensity, the more (less) managers designed and implemented responses to market intelligence. However, competitive intensity negatively affected intelligence generation and dissemination; thus the more (less) the perceived competitive intensity, the less (more) managers gathered market intelligence and disseminated it in their stores. Market turbulence had positive effects on each of the four market-orientation strategies as hypothesized; thus, consistent with findings of Davis et al. (1991), the more (less) the perceived market turbulence, the more (less) the managers generated and disseminated market intelligence and designed and implemented responses to it (see Table 1).

SEM results do not support hypothesis 2 as stated, but perceived environmental uncertainty had significant effects on dimensions of organizational structure in three of the tested cases.

Both market turbulence and competitive intensity significantly and positively affected the degree of specialization as hypothesized, indicating that the more (less) the perceived market turbulence and competitive intensity, the more (less) the specialization within the stores. However, competitive intensity negatively affected formalization, indicating that the more (less) the perceived competitive intensity, the less (more) the formalization of authority lines. Market turbulence did not significantly affect the degree of formalization. Most of these findings agree with those of Hrebiniak and Snow (1980) and Huber and Daft (1987) in indicating significant influence of the external environment on organizational structure (see Table 1).

SEM results do not support hypothesis 3 as stated, but some significant effects of organizational- structure dimensions on MO strategies are evident. Although formalization did not significantly affect intelligence generation, intelligence dissemination, or response design, it significantly and positively affected response implementation. Thus, as hypothesized, the more (less) formal a store's structure, the more (less) the managers implement responses to market intelligence, a result consistent with the argument by Zaltman et al. (1973) that these variables are positively related. In addition, the degree of specialization had significant, negative effects on intelligence generation and response design and implementation as hypothesized in the first two cases, but had no significant effect on intelligence dissemination; thus the more (less) the departmentalization, the less (more) the intelligence generation and response design and implementation. These results agree with the finding by Matsuno et al. (2002) that specialization negatively affects MO and with the argument by Zaltman et al. (1973) that specialization is inversely related to intelligence generation and response design (see Table 1).

CONCLUSIONS, CONTRIBUTIONS, AND IMPLICATIONS

Surveyed store managers perceived fairly high turbulence and competitive intensity in apparel retailing. This is not surprising given the booming growth and rising competition, including from foreign firms, in Chinese apparel retailing. In addition, surveyed managers have implemented MO strategies to some extent, perhaps reflecting Cao and Hansen's (2006) finding that Chinese firms have quickly learned MO strategies. The largely mid-range mean scores we found for MO strategies may suggest that surveyed managers are in transition toward increased MO levels, an advisable strategy under the intense competition in China's apparel retail market.

Past research on the relationships we examined has mainly focused on Western manufacturers, making it striking that our results largely agree with those in past studies. Examples are the mostly positive effects of environmental uncertainty on MO, implying increased MO activity in response to the uncertainty. Also striking is that the MO activity seems to occur under more mechanistic than organic organizational structures. The pattern found in extant research is that organic structure is most amenable to MO. This pattern may pertain more to Western businesses than to counterparts in Eastern countries like China where hierarchical structure is culturally embedded.

Although we found positive effects of competitive intensity and market turbulence on structural specialization, we found a negative or no effect of competitive intensity and market turbulence respectively on formalization. These results may imply that environmental uncertainty leads apparel store managers in China to, on one hand, increase specialization in their stores, perhaps to afford a finely grained view of market elements, and on the other

hand, loosen communication lines in their stores in the face of intense competition but maintain existing authority lines in the face of market turbulence, perhaps to ease dissemination of information that will help employees understand and respond to the competition but to provide stability as they deal with market changes. Our results also show that specialization negatively affects intelligence generation and the design and implementation of responses to the intelligence, but formalization positively affects the implementation of responses to the intelligence. These relationships may imply that isolation from spreading responsibility across departments makes it difficult to gather market intelligence and formulate and put into practice responses to the intelligence, but that well defined authority lines in a store facilitate the implementation of responses to market intelligence.

Implications of this research relate to the possibility that many apparel store managers in China are practicing market-orientation strategies under traditional mechanistic organizational structures. The increasing complexity and rapid change in China's apparel retail market may bring ever more challenges to traditional management systems. Managers of apparel retail stores in China may need to increase the flexibility of their organizations to raise the level of their market-orientation activity to be able to respond well to environmental changes in China's apparel retail market. Those who conduct future research on Chinese apparel retailing should examine this issue and look further into the implementation of market-oriented strategies and the relationship to their organizational structures.

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