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The Effects of Environmental Uncertainty and Entrepreneurial Proclivity on Market Orientation Process and Growth Momentum

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Abstract

Building on both marketing and entrepreneurship literature, this study empirically investigates how environmental uncertainty, market orientation process, and entrepreneurial proclivity are related to the growth momentum of business. The study specifically looks into such growth performance metrics as the market share growth rate, percentage of total sales generated by new products, and customer acquisition in the last three years. A conceptual model is proposed and fit to examine the magnitude of direct, indirect, and total effects of both external factors and entrepreneurial proclivity on three disaggregated market orientation components and the growth momentum measures. It is found that entrepreneurial proclivity, intelligence generation, and the responsiveness component of market orientation have a significant and positive effect on the growth momentum variables. It is also found that environmental uncertainty, in general, has limited impact on market orientation process and performance.

Keywords: *environmental uncertainty, entrepreneurial proclivity, market orientation, growth momentum*

INTRODUCTION

Growth through innovation and entrepreneurial processes in organizations has become a focal point of marketing strategy for a wide range of organizations, regardless of their age and size. Marketing and entrepreneurial actions are intertwined in their boundary-spanning roles: both involve extensive interactions with the environment and are associated with risk and uncertainty. Building on marketing and entrepreneurship literature, this article offers a conceptual model of the interrelationships among environmental uncertainty, the organization's entrepreneurial proclivity, market orientation, and growth performance. The model represents a theoretical proposition that multifaceted growth results from a firm's market orientation process, influenced by entrepreneurial posture, and perceived market environment. The proposed model is empirically tested with a data set obtained in Japan from pairs of senior executive informants (marketing and research and development [R&D]) of the same strategic business units (SBU).

LITERATURE BACKGROUND

Market Orientation

Kohli and Jaworski (1990) offer a conceptual framework of market orientation (MO). They propose a process-driven behavioral model that considers the three stages of market intelligence activities as the essence of MO. MO is conceptualized as a process in which one or more departments: (1) engage in activities geared toward developing an understand-

ing of customers' current and future needs and the market factors affecting them, (2) share this understanding across the organization, and (3) respond to the market intelligence by engaging in activities designed to meet select customer needs.

Much of the research on MO has focused on its influence on business performance (e.g., Noble, Sinha, and Kumar, 2002; Taghian, 2010). Several studies have found support for the market orientation–performance relationship (e.g., Jaworski and Kohli, 1993), while others have found either more equivocal or nuanced relationships (Atuahene-Gima, 2005; Grewal et al., 2013; Matsuno and Mentzer, 2000). A meta-analytic study by Kirca, Jayachandran, and Bearden (2005) found that the relationship is generally positive, while the strength of such a relationship varies across industries (e.g., manufacturing vs. service), cultures (e.g., low vs. high in power distance and uncertainty avoidance), and performance measures (e.g., cost-based vs. revenue-based). Instead of following the tradition of pursuing factors that are external to MO (i.e., antecedents, mediators, and moderators) in an attempt to gain insight into its performance impact, this research explores the inner workings of a MO and the impact of each of the three components on business performance. Interestingly, there is little empirical research that sheds light on the relationships *within* the MO construct.

The linkages among the three components of MO are important. Increasingly turbulent and fast-paced business environments have encouraged organizations to accelerate the MO process of collecting, evaluating, and sharing market intelligence throughout the firm in order to develop and implement a unified response. In order to accelerate the MO process, however, some organizations may not fully and effectively diffuse the intelligence generated throughout the organization. Further, spreading market information throughout the firm may not necessarily ensure that all relevant parties have a shared understanding of the intelligence, thus providing an inadequate basis upon which to act. In either case, the result would be a disjointed or insufficient response, which may result in no, or negative, impact on business performance. Therefore, by disaggregating and closely investigating the MO process, this study attempts to evaluate the impact of the MO process on organizational performance.

Entrepreneurial Proclivity

Although earlier studies of entrepreneurship have dealt with either a market-entry problem or a description of entrepreneurs, more contemporary entrepreneurship literature concerns the management processes, that is, "the methods, practices, and decision-making styles managers use to act entrepreneurially" (Lumpkin and Dess, 1996, p. 136). Strategic management and marketing literature use several different but interchangeable terms, including entrepreneurial proclivity (e.g., Pellissier and Van Buer, 1996) and entrepreneurial orientation (e.g., Hughes and Morgan, 2007), to describe the general concept of entrepreneurial management practices and processes. Collectively, the past literature offers three underlying dimensions of the organizational predisposition toward entrepreneurial management processes: innovativeness, risk taking, and proactiveness (Covin and Slevin, 1989; Wang, 2008). This study uses the term entrepreneurial proclivity and adopt the definition provided by Matsuno, Mentzer, and Özsomer (2002): the organization's predisposition to accept entrepreneurial processes, practices, and decision making, characterized by its preference for innovativeness, risk taking, and proactiveness.

The three underlying dimensions of entrepreneurial proclivity conceptually constitute the rationale for firms to renew the organization; destroy the existing order of the market (Schumpeter, 1934); and offer an alternative, superior customer value proposition. Although in concept researchers agree that entrepreneurial proclivity *should* contribute to a firm's superior performance and survival (e.g., Barringer and Bluedorn, 1999; Lumpkin and Dess, 1996), empirical results have not always been consistently supportive (Zahra, 1993). Furthermore, whether or not this theoretical construct with its origin in start-up and small-and-medium enterprises in the United States applies in a large corporate setting elsewhere is not well established empirically.

Environmental Uncertainty

Strategic management literature investigates the

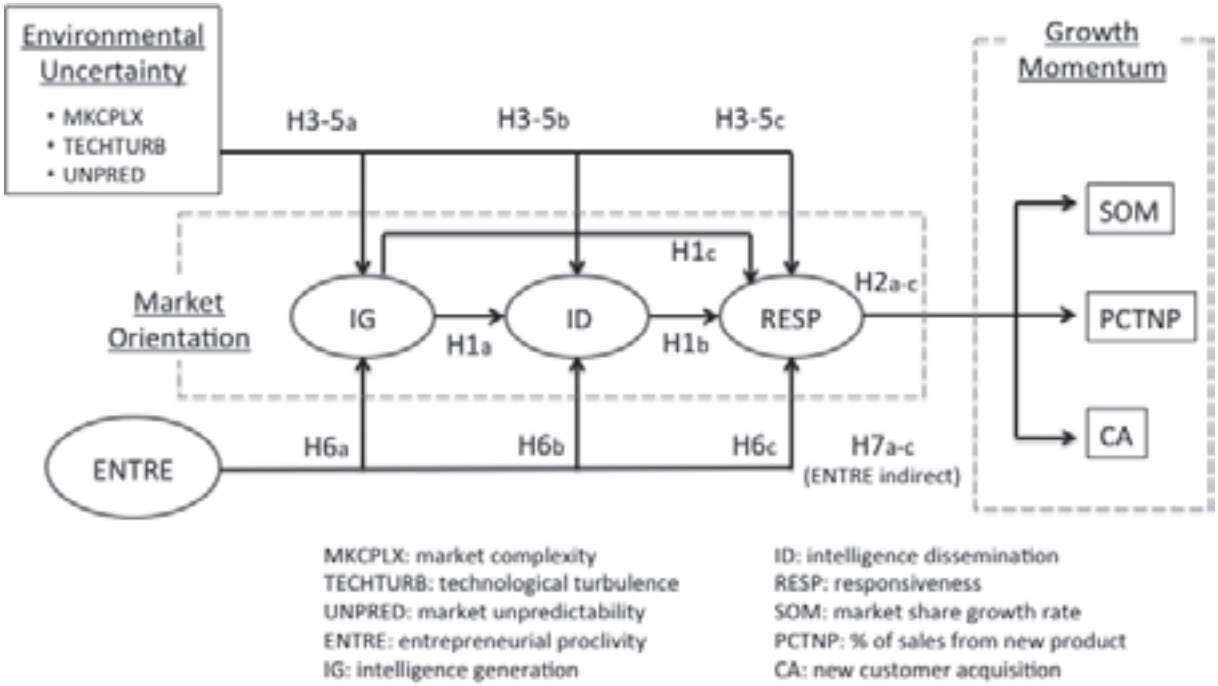

Figure 1: Conceptual Model and Hypotheses

relationship between environmental elements and the firm's conduct using a strategic choice perspective (e.g., Pfeffer and Salancik, 1978; Rumelt, 1991). Strategic choice theorists maintain that managers proactively and purposefully choose and define their relevant operating context to achieve desired performance outcomes. Sarasvathy and Dew (2005) argue that the business environment represents the provision of volatility, uncertainty, risk, resources, and rewards to its inhabitants, and the businesses evaluate their chance of successfully exploiting their own resources and capabilities in dealing with the knowns, unknowns, and unknowables in the perceived environments.

Firms, as entities that aspire to be rational in a given environment, seek maximum efficiency in achieving their goals and, therefore, consciously analyze risks and incentives to make strategic choices. Consequently, the strategic choice view suggests that different environmental cognitions among the firms result in idiosyncratic strategies, which in turn produce performance variations in the same market environment. Theoretically, the concept of adaptation by choice implies a mediating role of market orientation between environmental factors and business performance, because a firm must observe the environment first, and then interpret it, before acting on it to achieve desired outcomes.

Some researchers have argued that the process of environmental scanning and acting on gathered intelligence is the foundation for strategy formulation and execution, because it facilitates firms finding a fit with their environment (e.g., Tippins and Sohi, 2003). During strategy formulation, managers attempt to understand relevant market developments that will affect their organization's future in order to develop competencies and capabilities to address those changes (Jarratt and Fayed, 2001). This external analysis that occurs throughout the formulation of strategy is essentially the generation and dissemination of intelligence about the market and competition.

CONCEPTUAL MODEL AND HYPOTHESES

The theoretical model (Figure 1) shows the proposed relationships among the four building blocks of this study: environmental uncertainty, entrepreneurial proclivity, the MO process, and growth

momentum. Theoretically, the model posits that both environmental uncertainty and entrepreneurial proclivity are the direct antecedents to the MO process. Furthermore, entrepreneurial proclivity should indirectly and positively relate to the level of growth momentum.

The model argues that disaggregating the MO construct into intelligence generation, intelligence dissemination, and intelligence responsiveness should afford us a more detailed understanding of not only the MO construct itself as a whole, but also its internal workings. Kohli, Jaworski, and Kumar (1993) suggest a potential causal ordering among the various components of market orientation, pointing out that market intelligence must be generated before it can be disseminated. In turn, the generated knowledge must be disseminated before anyone can respond to it (Kohli and Jaworski, 1990).

Intelligence Generation, Dissemination, and Responsiveness

With its intent to develop an organization-wide, cohesive market response to achieve performance improvements, an organization should strengthen the link between intelligence generation and dissemination. When a firm generates intelligence to make sense of the external environment and find a strategic fit, it is more likely that such intelligence is disseminated. Effective dissemination of intelligence, however, involves more than information transmission because the dissemination is a goal-conscious, if not goal-oriented, persuasion activity. Simply "throwing information over the wall" to other functions or departments does not ensure that intelligence has been disseminated. Although the information may be transmitted, the *understanding* of the information may not be effectively shared. A market-oriented firm, however, shares not only the information about the market, but also the understanding of such information across departments so that the disseminated intelligence is actionable and acted upon (Kohli and Jaworski, 1990). For an organization to adapt to market needs, market intelligence must be communicated and "perhaps even sold to relevant departments and individuals in the organization" (Kohli and Jaworski, 1990, p. 5) in order to plan and execute an appropriate response (Troy, Szymanski, and Varadarajan, 2001). Research in a variety of disciplines highlights the importance of effective intelligence dissemination for promoting actual responses (Griffin and Hauser, 1996). This renders support for the presence of positive indirect influence of intelligence generation on responsiveness through intelligence dissemination.

- **H1a**: Intelligence generation has a positive direct effect on intelligence dissemination.
- **H1b**: Intelligence dissemination has a positive direct effect on responsiveness.
- **H1c**: Intelligence generation has a positive direct effect on responsiveness.

Effective generation and dissemination of intelligence are imperative to organizational response and performance. A response based on insufficient information and/or differing interpretations is not likely to meet the needs of the market and will result in higher costs due to inconsistencies or redundancies in operations (Kohli and Jaworski, 1990). Effective intelligence dissemination has been linked to a variety of positive organizational performance outcomes (e.g., Hartline, Maxham, and McKee, 2000). Although some researchers argue that too much information sharing can create dysfunction due to information overload (e.g., Huber, 1991), cumulative evidence suggests that higher levels of open communication and shared market intelligence increase organizational performance (e.g., Hult, Ketchen, and Slater, 2004; Troy, Szymanski, and Varadarajan, 2001) through organizational actions. Although the past MO literature suggests that a MO as a whole has a positive effect on business performance, such a link is logically possible only in the presence of actual market responses by the firm. Therefore:

- **H2a–c**: Responsiveness has a positive effect on: a) market share, b) percentage of new product sales, and c) return on investment (ROI).

Environmental Uncertainty

Environmental uncertainty can be dimensionalized in terms of magnitude, frequency, and unpredictability of changes (Dess and Beard, 1984), and it presents complex questions for organizations.

On one hand, organizations may be intimidated by perceived environmental uncertainty and choose a strategy that embraces the status quo and decide not to proactively deal with the situation. On the other hand, by recognizing environmental uncertainty, organizations could elect to be more proactive and innovative to survive or thrive against the competition.

Market complexity (MKCPLX) refers to the similarity/dissimilarity in the elements of the market dealt with (Achrol and Stern, 1988). When diversity or heterogeneity of such market elements as the numbers and types of customer segments, products, and brands increase, the market complexity and, thus, uncertainty increase. Technological turbulence (TECHTURB) can be defined as the degree of change associated with product and process technologies in the industry in which a firm competes (Hanvanich, Sivakumar, and Hult, 2006), which increases the environmental uncertainty. Likewise, the unpredictability (UNPRED) of major changes in competitors' marketing executions (e.g., sales, pricing, sales promotion/advertising, new product introductions) increases the environmental uncertainty for businesses.

Environmental uncertainty has been studied mostly as a moderating variable on the relationship between MO and business performance (Grewal et al., 2013; Hanvanich, Sivakumar, and Hult, 2006; Kumar et al., 2011). But does an uncertain environment directly increase the level of MO? Interestingly, very few studies empirically investigate the direct main effects of environmental uncertainty on MO. According to one such study by Song and Parry (2009), market turbulence, competitive intensity, and technological turbulence have a positive and significant direct effect on MO. Their findings are consistent with the view that Sarasvathy and Dew (2005) advanced. That is, when firms confront risk and uncertainty in the market, they attempt to learn and evaluate the market conditions as much as possible so that they can deploy their resources and capabilities effectively to deal with them. In summary, it is proposed that when organizations perceive a high level of environmental uncertainty, they are more likely to engage in a greater level of intelligence-related activities to deal with the risk associated with the environmental uncertainty. Therefore:

H3a–c: Market complexity (MKCPLX) is positively related to: a) intelligence generation (IG), b) intelligence dissemination (ID), and c) responsiveness (RESP).

H4a–c: Technological turbulence (TECHTURB) is positively related to: a) intelligence generation (IG), b) intelligence dissemination (ID), and c) responsiveness (RESP).

H5a–c: Unpredictability of market changes (UNPRED) is positively related to: a) intelligence generation (IG), b) intelligence dissemination (ID), and c) responsiveness (RESP).

Entrepreneurial Proclivity, Market Orientation, and Growth Performance

Whether organizations generate market intelligence because they are prompted by their entrepreneurial urge is an empirical question in this study (H6). In light of an increasingly fast-changing environment, some organizational strategic postures may accentuate the importance of effective generation and dissemination of market intelligence in developing a coherent response. In particular, it is known that organizations with a high level of entrepreneurial proclivity possess the characteristics (e.g., innovativeness, risk taking, and proactiveness) that make intelligence generation and dissemination even more vital for an effective marketing response (Matsuno, Mentzer, and Özsomer, 2002).

Entrepreneurship literature argues that with a high level of environmental uncertainty, the greater necessity and greater opportunities encourage firms to adopt creative and innovative approaches to separate themselves from the competitive crowd and embrace risks (Dess, Lumpkin, and Colvin, 1997; Wang, 2008). Furthermore, innovative and proactive firms would seek a greater reward from the market that compensates for their risk-taking behaviors (Robertson and Gatignon, 1986). In other words, businesses encounter a strong incentive to be entrepreneurial because of, but not despite, the associated risk and outcome variation.

Some empirical studies offer support for the correlation between perceived market risk and a risk-taking posture (e.g., Zahra and Covin, 1995).

H6a–c: Entrepreneurial proclivity has a positive effect on: a) intelligence generation (IG), b) intelligence dissemination (ID), and c) responsiveness to the intelligence (RESP).

The relationship between the entrepreneurial proclivity and business performance attracted much research attention in the past. The most comprehensive meta-analysis, by Rauch et al. (2009), provides general support for the positive performance impact of entrepreneurial proclivity. However, out of 46 single-country studies covered in their meta-analysis, 39 studies were from Western countries (i.e., 27 from the United States, 9 from Europe, 3 from Australia) and only 7 studies were based on Asian samples. For this small number of studies in Asia, all of them were of firms of either "micro size" (1 to 49 employees) or "small size" (50–499 employees), with an average company size of 160. In sum, although the meta-analysis reports corrected correlations ranging between .20 and .25 between entrepreneurial proclivity and overall business performance (archival financial performance, growth), universal performance impact of the construct across nations and company sizes is not established yet. To examine the generalizability of the entrepreneurial proclivity concept in larger firms in Asia, this study selects larger Japanese strategic business units (SBUs) as the research context. With a two-decade-long slow growth of the economy, many Japanese businesses are in search of managerial inspirations from the West, particularly from the United States, partly because the regained strength of the U.S. economy since the 1990s coincided with the decline of their own economy (Pudelko, 2009).

It is expected that the performance effect of entrepreneurial proclivity be indirect. In this indirect route, the strategic posture influences the performance through the market orientation process, because market orientation is considered as a risk-reduction mechanism of the entrepreneurial tendency of organizations (Bahadir, Bharadwaj, and Parzen, 2009; Wang, 2008). Matsuno, Mentzer, and Özsomer (2002) found no direct influence of entrepreneurial proclivity on the market share growth and the percentage of total sales generated by new products. Therefore:

H7a–c: Entrepreneurial proclivity has an indirect and positive effect on: a) market share growth (SOM), b) percentage of total sales generated from new products (PCTNP), and c) new customer acquisition (CA).

METHOD

Data Collection

A master list of the 1,000 largest Japanese manufacturing companies, including both publicly traded and privately held companies, was obtained from a Tokyo-based market research company. The research company contacted each company and identified a marketing executive and an R&D executive (both at vice president or director level) within the same SBU of the company. It also conducted a small-scale pretest of 12 pairs (separate from the 1,000 sample companies) to ascertain the comprehensibility and ease of response of the survey items, which originally were developed in English. The items were translated into Japanese by professional translators who employed back-translation method to ensure the equivalency of item meaning. The research company then contacted the identified executives to ask for their voluntary participation in the survey. A two-wave mailing of survey instruments produced responses from 273 marketing executives and 253 R&D executives. However, only 207 complete pairs of responses were available, reducing the pair-wise response rate to 20.7%; these paired responses form the sample for the hypotheses testing. To assess nonresponse bias, a multivariate analysis of variance (MANOVA) was applied to the business performance variables based on the two mailing waves. None of the multivariate tests of significance indicate differences in the performance variables; so nonresponse bias does not appear to be a problem for the analysis.

Measures

To reduce single-respondent–related common method bias, the data were collected from both

marketing and R&D executives in each participating SBU to the extent possible. When responses were obtained from both executives, the scores were averaged to derive at one score. The measurement items were purified based on both substantive (e.g., breadth of theoretical content coverage, consistency of contents tapped by items within a single factor, clarity of meaning) and empirical (e.g., descriptive, fit, and reliability statistics) criteria.

For *Environmental Uncertainty*, three measures from previous research were adopted (Homburg, Workman, and Krohmer, 1999): market-related complexity (MKCPLX, 7 items), technological turbulence (TECHTURB, 5 items), and unpredictability of market-related changes (UNPRED, 5 items). For *Entrepreneurial* Proclivity, Matsuno, Mentzer, and Özsomer (2002) provided the basis for the measure (ENTRE) for this study. The entrepreneurial proclivity scale was treated as a 6-item, first-order construct scale. For *Market Orientation*, Matsuno and Mentzer's (2000) scale was adapted for the study. Intelligence generation (IG) is measured by four items, while intelligence dissemination (ID) and responsiveness (RESP) are measured by five items for each.

Growth Momentum refers to the degree to which a firm successfully seeks, maintains, and accelerates its growth in the market in which it chooses to compete. On the basis of findings from the exploratory interviews, three growth performance metric items that reflect the current and prospective growth of firms were identified: growth rate of relative market share (SOM), current percentage of total sales made from new product (PCTNP), and new customer acquisition (CA). Because the sample consists of both private and publicly held SBUs across multiple manufacturing industries, the survey instrument asked the executives to provide subjective measures in comparison with their major rivals in the last three years, following Covin and Slevin's (1989) recommendation. Although the three growth performance measures are conceived as part of the single factor (i.e., growth momentum), they were treated as separate, single items that allow us to see the differential impact of antecedent variables on them in terms of direct, indirect, and total effects. In addition to the variables directly related to the hypotheses, two control variables (i.e., annual revenue and employee size) that are related to the company's resources were included. The natural logs of the two variables were entered in the structural equation model as covariates to the three growth momentum measures. Due to space limitations, all original measures and their informant sources are not included here, but are available from the author upon request.

Scale Validation and Measurement Model

The seven multi-item latent constructs (IG, ID, RESP, MKCPLX, TECHTURB, UNPRED, ENTRE) were subjected to a confirmatory factor analysis measurement model. The overall fit of the measurement model is satisfactory ($\chi^2_{(608)} = 1001.44$; RMSEA = .06; NFI = .88; CFI = .95; IFI = .95). The scales' average variance extracted (AVE) and composite reliability are .62 and .92 (MKCPLX), .54 and .85 (TECHTURB), .50 and .83 (UNPRED), .47 and .84 (ENTRE), .39 and .72 (IG), .47 and .82 (ID), and .41 and .78 (RESP). Given the acceptable fit of the measurement model and the scales' convergent and discriminant validity, the empirical model was fitted to test the hypotheses. In addition to the multi-item scales, three single-item scales (SOM, PCTNP, CA) were included as dependent variables, which represent a broad conceptual domain of the growth momentum.

ANALYSIS AND RESULTS

The hypotheses were tested simultaneously with LISREL 9.1. The hypothesized model yields acceptable fit statistics ($\chi^2_{(778)} = 1190.36$; RMSEA = .05; NFI = .89; CFI = .96; IFI = .96). The squared multiple correlations for the structural equations (R^2) are .79 (RESP), .17 (SOM), .18 (PCTNP), and .32 (CA). Overall, the fit statistics satisfy the criteria established by Bagozzi and Yi (1988), suggesting that the model provides an acceptable representation of the data for testing the hypotheses. Only one control variable, annual revenue size, was found significant and negative on customer acquisition (CA: –.24, z-value = –2.51), but not on others. The employee size was not found to be significant. The empirical model fitting results are provided in Table 1.

For H1a–c and H2a–c, it is hypothesized that there are positive, sequential effects emanating

Table 1: Hypotheses Testing Results (standardized)

Direct Effect				
From	To	Standardized Estimate	z-value	Hypotheses
IG	ID	.90	5.92	H1a
	RESP	.60	2.32	H1c
ID	RESP	-.12	-.56^{ns}	H1b
RESP	SOM	.42	5.27	H2a
	PCTNP	.41	5.22	H2b
	CA	.55	6.76	H2c
MKCPLX	IG	.45	4.51	H3a
	ID	-.21	-2.40	H3b
	RESP	-.27	-2.52	H3c
TECHTURB	IG	-.07	-.79^{ns}	H4a
	ID	.18	2.35	H4b
	RESP	-.05	-.66^{ns}	H4c
UNPRED	IG	-.21	-2.31	H5a
	ID	.07	.84^{ns}	H5b
	RESP	.00	.06^{ns}	H5c
ENTRE	IG	.35	3.73	H6a
	ID	.01	.18^{ns}	H6b
	RESP	.64	6.19	H6c
Control Variables				
Sales	SOM	-.06	-.55^{ns}	n/a
	PCTNP	.11	1.10^{ns}	n/a
	CA	-.24	-2.51	n/a
Employee	SOM	.04	.39^{ns}	n/a
	PCTNP	-.09	-.90^{ns}	n/a
	CA	.12	1.30^{ns}	n/a

ns: not significant at .05 level

from the IG through ID and RESP, resulting in positive growth momentum outcomes. The results indicate support for all the hypotheses, except for H1b (–.12, z-value = –.56), which is notable because H1a and H1c (positive direct paths from IG to ID and RESP) are supported. It indicates that the disseminated intelligence is not carried forward to RESP, and the generated intelligence is directly brought to responses.

H3a–c predicted that MKCPLX is positively related to IG, ID, and RESP, respectively. H3a was supported with a positive and significant LISREL estimate on IG (.45, z-value = 4.51), while H3b and H3c were found negative and significant (ID: –.21, z-value = –2.40; RESP: –.27, z-value = –2.52). Therefore, H3b–c were not supported—the greater the market complexity, the less intelligence dissemination and responsiveness. H4a–c predicted that TECHTURB is positively related to IG, ID, and RESP, respectively. H4a was not supported, with a nonsignificant LISREL estimate on IG (–.07, z-value = –.79). H4b was supported with a positive and significant estimate on ID (.18, z-value = 2.35)—the greater technological turbulence, the greater intel-

Table 2: Selected Total and Indirect Effects (standardized)

Total Effect					*Indirect Effect*			
From	To	Standardized Estimate	z-value		From	To	Standardized Estimate	z-value
IG	ID	.90	5.92		IG	ID	-	-
	RESP	.50	4.47			RESP	-.11	-0.54^{ns}
						SOM	.21	3.83
						PCTNP	.20	3.80
						CA	.27	4.29
ID	RESP	-.12	-0.56^{ns}		ID	RESP	-	-
						SOM	-.05	-0.56^{ns}
						PCTNP	-.05	-0.55^{ns}
						CA	-.07	-0.56^{ns}
MKCPLX	IG	.45	4.51		MKCPLX	IG	-	-
	ID	.19	2.26			ID	.41	4.14
	RESP	-.02	-0.28^{ns}			RESP	.25	2.68
TECHTURB	IG	-.07	-0.79^{ns}		TECHTURB	IG	-	-
	ID	.12	1.34^{ns}			ID	-.062	-0.78^{ns}
	RESP	-.11	-1.48^{ns}			RESP	-.055	-0.88^{ns}
UNPRED	IG	-.21	-2.30		UNPRED	IG	-	-
	ID	-.12	-1.43^{ns}			ID	-.19	-2.25
	RESP	-.11	-1.45^{ns}			RESP	-.11	-1.97
ENTRE	IG	.35	3.73		ENTRE	IG	-	-
	ID	.33	3.77			ID	.32	3.53
	RESP	.81	7.06			RESP	.17	3.12
						SOM	.34	5.10
						PCTNP	.33	5.05
						CA	.45	6.41

ns: not significant at .05 level

ligence dissemination. H4c was not found to be significant (RESP: –.05, z-value = –.66). Therefore, H4c was not supported.

H5a–c predicted that UNPRED is positively related to IG, ID, and RESP, respectively. The path coefficient between UNPRED and IG was found negative and significant (–.21, z-value = –2.31). Therefore H5a was not only rejected but it was opposite: the greater unpredictability, the less intelligence generation. H5b–c were not supported because both path coefficients were found to be nonsignificant. For H6a–c, ENTRE was expected to have a positive effect on IG, ID, and RESP. The results indicate that H6a (IG) and H6c (RESP) were supported with significant and positive coefficient estimates. However, H6b was not supported: it was found that ENTRE and ID were not related.

In order to test H7a–c, the coefficients and significance of the indirect effects and total effects within the structural model were estimated. (See

selected total and indirect effects provided in Table 2.) H7a–c dealt with the indirect effects of ENTRE on the three growth performance indicators. The indirect effects of ENTRE on all the growth measures were found to be positive and significant: .34 for SOM, .33 for PCTNP, and .45 for CA. Therefore, H7a–c were all supported.

DISCUSSION AND IMPLICATIONS

As a departure from the previous studies that mostly treated MO as a single three-dimensional construct, this study investigated MO as a process of disaggregated behaviors. This approach is more consistent with the sequential activities managers undertake and the way organizations formulate and then execute their strategies. It also demonstrates the interrelationships among environmental uncertainty, entrepreneurial proclivity, and the intelligence-driven response process, which in turn positively impacts the growth momentum of the business. The results shed interesting light on how Japanese companies are dealing with the market intelligence process in light of their environmental uncertainty (external factor) and entrepreneurial proclivity (internal factor).

First, the disaggregated approach allowed us to see that different aspects of environmental uncertainty influence the intelligence-related components differently, while the positive impact of entrepreneurial proclivity is found to be robust on both market orientation process (direct) and growth outcome measures (indirect). Nuanced direct effects were revealed between environmental uncertainty and the MO process, especially on IG and ID. For example, market complexity (MKCPLX) has a direct positive impact on intelligence generation (IG), but a direct *negative* impact on both intelligence dissemination (ID) and responsiveness (RESP). MKCPLX seems to compel businesses to generate more intelligence, but it discourages dissemination and responsiveness. Technological turbulence (TECHTURB) promotes ID, but has no effect on either IG or RESP. Furthermore it was found that market unpredictability (UNPRED) discourages IG, while it has no effect on ID and RESP.

Second, the effects of three components (IG, ID, and RESP) on the growth measures were examined. Both IG and RESP exert a strong positive effect on the growth performance measures, while ID has little impact on them (Table 2). This is interesting because it did not seem plausible for organizations to respond to market intelligence *without* disseminating and sharing it. Indeed, IG is highly correlated to ID (H1a). It is only ID and RESP that are not significantly related, while IG and RESP are highly correlated (H1c).

It seems that intelligence dissemination and information sharing are quite common and done very often in these Japanese organizations. However, once intelligence is disseminated, a substantial part of the information acquired seems to stay there, not leading to responsiveness, an indication of inaction. On the other hand, the IG seems to go directly to RESP as well without going through the ID path. Although the market orientation literature recommends organization-wide dissemination, these results raise a question about the necessary condition status of ID. Perhaps when intelligence is disseminated so highly, the responses may be hindered or paralyzed by the disseminated intelligence, while the responses could be made directly out of intelligence generation alone. It is certainly an intriguing question that needs more empirical research attention.

The assumption that more generation and dissemination of intelligence leads to more responsiveness to that intelligence has led to an equal treatment of the three components of market orientation in the literature. This, however, might have underestimated the roles of intelligence generation and responsiveness within the MO process on business performance. Indeed, looking at both the indirect effects of IG on the three growth momentum measures (.21, .20, .27; see Table 2) and the direct total effects of RESP on the same measures (.42, .41, .55; see Table 1), we recognize that approximately 50% of the latter comes from IG. The results of this study argue for more research in the area of implementing responses to market intelligence.

Third, the results also provide interesting insight with regard to entrepreneurial proclivity's impact on growth momentum. The sequential flow from entrepreneurial proclivity through the MO process to performance is robust, as all indirect estimates are statistically significant. An entrepreneurial pos-

ture should be followed up with an intimate knowledge of the market environment, built through diligent market scanning. The magnitude of the indirect (therefore, total) effects in this study ranged from .33 to .45, consistent with the range among the measures that appeared in previous studies (e.g., Matsuno, Mentzer, and Özsomer, 2002).

Limitations and Further Research

This study has several limitations that could benefit from further research. First, the results rely on subjective measures. To reduce the risk of single-respondent–based bias, dyadic inputs were sought for relevant measures. Although using subjective measures is often the only feasible approach for studies at the SBU level, and though prior research demonstrates that subjective assessments are closely related to objective measures, additional research is recommended to explore alternative, objective sources to measure the constructs at the SBU level.

Second, this study used a cross-sectional, single-country sample, which makes it impossible to eliminate alternative predictions about path direction in the structural model. A longitudinal study would provide further qualification to the results. In addition, retesting the conceptual model in different nations would help validate the generalizability of the findings. Third, research should continue to investigate the process by which entrepreneurial proclivity affects a firm's growth. The study indicates that, although environmental uncertainty does affect the market orientation process, its performance impacts are minimal. On the other hand, entrepreneurial proclivity's impact is robust and pervasive throughout the MO process and business growth. There is also an opportunity to investigate interaction effects of entrepreneurial proclivity and environmental uncertainty on the MO process. At minimum, this study offers a starting point for further exploration of how specifically an entrepreneurial orientation can guide Japanese businesses to grow.

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