

Factors facilitating and impeding the development of export market-oriented behavior: A study of Hong Kong manufacturing exporters

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Abstract

We test a model of the antecedents to market-oriented behavior in firms' export operations (i.e., export market-oriented [EMO] behavior). Using data from Hong Kong-based industrial manufacturing exporters, we explain 73% of the variance in EMO activity. Our findings confirm the importance of variables such as export coordination, export experience, and the export environment in determining EMO behavior levels. However, several hypotheses are refuted, contradicting previous research findings. For instance, in our sample, centralized decision-making generally is positively related to EMO activity—particularly under conditions of high environmental turbulence: this contradicts findings of studies in Western exporting businesses where centralization generally inhibits EMO behavior. Furthermore, unlike their Western counterparts, market-based reward and training systems and managers' export commitment and emphasis on market orientation do not predict EMO behavior. We suggest that these unexpected findings may be due to differences in culture between Asian and Western businesses.

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1. Introduction

It is argued that a powerful way to enhance the export performance of manufacturing companies is for them to adopt a market orientation in their export operations (Cadogan, Diamantopoulos, & Siguaw, 2002). Specifically, for most exporting manufacturers, empirical studies indicate that higher levels of market-oriented activity in the firms' export markets (hereafter, export market-oriented [EMO] behavior) is associated with higher levels of export success (e.g., Akyol & Akehurst, 2003; Cadogan, Diamantopoulos, & de Mortanges, 1999; Cadogan et al., 2002; Sundqvist, Puumalainen, Salminen,

& Cadogan, 2000). Given these encouraging findings, it is clear that managers can benefit from understanding the conditions that facilitate or impede the development of EMO behavior. However, research into these antecedent factors is scarce in an exporting context. It is more common for researchers to study antecedents to market orientation in non-export-specific settings (e.g., Avlonitis & Gounaris, 1999; Bhuian, 1998; Chelariu, Ouattarra, & Dadzie, 2002; Jaworski & Kohli, 1993; Pelham & Wilson, 1996; Pulendran, Speed, & Widing, 2000; Ruckert, 1992; Selnes, Jaworski, & Kohli, 1996; Valera & del Rio, 2003; Winston & Dadzie, 2002).

This state of affairs is unfortunate because one cannot assume that findings uncovered in non-export-specific studies can be transferred to exporting firms. That is, the antecedents to market orientation may be context-specific such that “antecedents may be found which affect a firm's market-oriented behavior in its export operations but, because of their context-specific nature, do not lend themselves to being modeled as antecedents to a firm's market-oriented behavior

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in its domestic market” (Cadogan, Paul, Salminen, Puumalainen, & Sundqvist, 2001, p. 262). Thus, researchers interested in understanding antecedents to EMO behavior have to contend with the possibility that antecedent factors may not mirror or have the same affect as those identified in non-export-specific studies. Cadogan and colleagues’ empirical findings add credence to this contention, since they discover antecedent factors to EMO behavior that are unique to the exporting context, and which have little meaning within non-export settings (see Cadogan et al., 2001, 2002).

A further problem arises from the scarcity of research into the antecedents to market-oriented behavior of exporters. Specifically, to the authors’ knowledge, only two published studies attempt to identify factors facilitating or inhibiting EMO behavior: Cadogan et al.’s (2001) investigation of New Zealand and Finnish exporters, and Cadogan et al.’s (2002) study of US exporters. This paucity of empirical evidence means that export managers operating in non-Western business environments have only Western-based empirical evidence to help them develop strategies for managing EMO levels in their businesses. However, non-Western business cultures may be different from those found in Western firms, especially in terms of market-oriented activities (cf., Deshpandé & Farley, 2004), and generalizing studies of exporting behavior from Western to non-Western business contexts may be misleading (see Ling-ye, 2004). Indeed, it is noted that there is a need for more studies into the transferability of Western exporting research to the Asian business setting (Ambler, Styles, & Xiucun 1999). In this respect, Cadogan et al. (2001) argue that the antecedents to EMO behavior may be partially nation-specific, and present some empirical evidence in support of this notion.

Given this situation, the purpose of the current study is to shed new light on the antecedents to EMO behavior on two fronts. First, responding to Ambler et al.’s (1999) call, our main contribution is to test the generalizability of previous models of antecedents to EMO behavior in an Asian business setting. To this end, we utilize a sample of Hong Kong-based industrial manufacturing exporters to provide initial insights into the research question. Our second contribution is to extend the previous models of EMO behavior’s antecedents by adding to the hypotheses already developed. As a result, we add richness to our current understanding of how EMO behaviors come about, and how they can be fostered and managed.

In what follows, we describe the domain of the EMO behavior construct, and then present our model of its antecedents. We then explain the methods used to test the model and describe our results. Finally, we discuss the findings of the study, highlight the managerial implications, and provide suggestions for future research.

2. Background and conceptual model

In line with opinions in the broader literature (e.g., Kohli & Jaworski, 1990), researchers have defined EMO behavior as comprising three key activities, namely export market intelligence generation, dissemination and responsiveness. What differentiates EMO behavior from broader market-oriented

activities is that “EMO behavior is [focused] towards *export* customers’ current and future needs, competition within the firm’s *export* markets, and other exogenous factors... influencing the firm’s *export* performance” (Cadogan et al., 2001, p. 263). Consequently, EMO activities involve the firm collecting information that is relevant to its exporting operations, disseminating that information to appropriate decision-makers within the firm, and developing and implementing responses to influence export customers, exploit competitive advantage over export competitors, and otherwise take advantage of, or avoid problems relating to, other extraneous export market factors affecting the firm’s ability to provide superior value to export customers (Cadogan et al., 2002).

3. A model of the antecedents to EMO behavior

Cadogan and colleagues’ (Cadogan et al., 2001, 2002) empirical studies identify antecedents to EMO behavior in samples of exporters in New Zealand, Finland and the USA. This work draws heavily on variables and ideas arising in the contingency theory of the firm (see Donaldson, 2001). In this respect, four key sets of antecedent variables can be identified: export structures, export systems, export development indicators, and export environment factors (see Fig. 1). We expand on these factors now. In doing so, we present arguments and hypotheses previously modeled and, drawing on new literature sources, we extend the theory of EMO’s antecedents by presenting a new hypothesis regarding the roles of export coordination and the export environment in determining firms’ EMO behavior levels.

3.1. Export structures

Three aspects of organizational structure are considered for their potential impact on EMO behavior: export formalization, export centralization, and export coordination. We discuss these now.

3.1.1. Export formalization

Export formalization concerns the extent to which rules determine organizational members’ roles, authority relations, communication norms, sanctions and procedures (e.g., Kohli & Jaworski, 1990). Adopting a contingency theory perspective, Cadogan et al. (2001) argue that formalization facilitates basic EMO behaviors, but only when the export environment is stable. When the environment is turbulent, greater flexibility is required, and less formalized structures are needed to cope with the variability of demands posed by the export environment. The empirical evidence provides support for this notion—with formalization returning a positive relationship with EMO behavior under conditions of relative environmental stability, and returning a negative relationship with EMO behavior under conditions of relative environmental turbulence (Cadogan et al., 2001). As a consequence, we test the following hypothesis:

H1a. The relationship between the degree of formalization in firms and their EMO behavior is positive under relatively stable

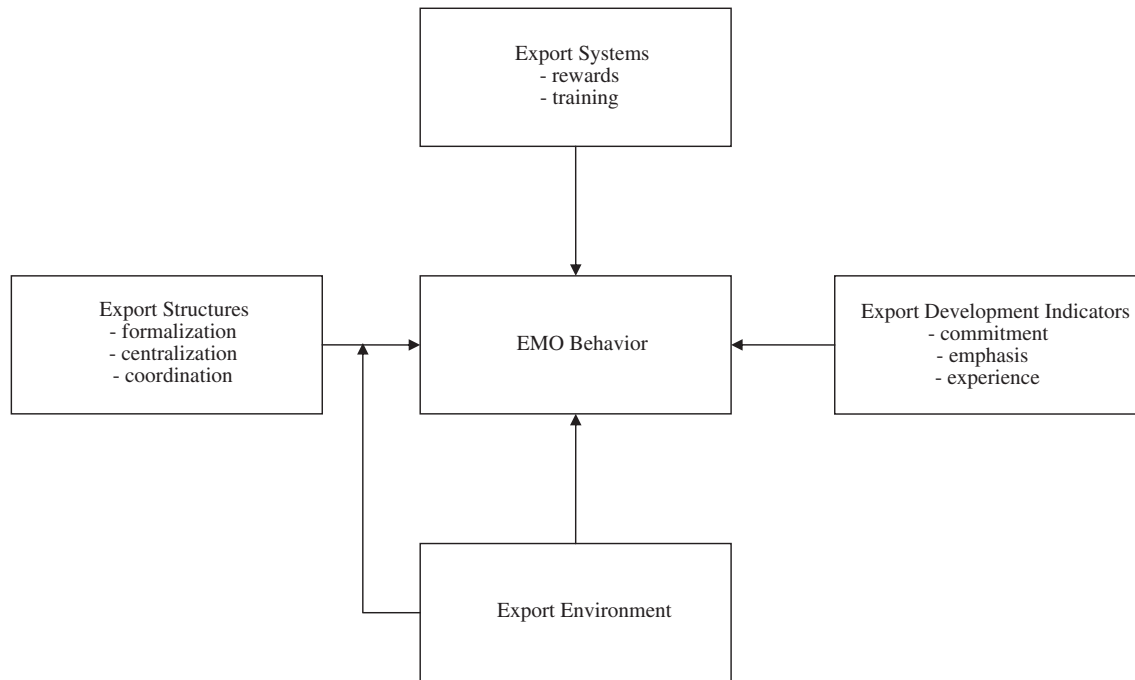


Fig. 1. Model of antecedents to EMO behavior.

environmental conditions, and negative under relatively turbulent environmental conditions.

3.1.2. Export centralization

Centralization is concerned with where decision-making authority is located. Highly centralized export decision-making takes place in a top management team, with export function members having little decision-making authority. Decentralized export decision-making occurs when export market decisions are delegated to export function employees. It is argued that export decision-making efficiency can be increased with higher export centralization (Belich & Dubinsky, 1995). However, drawing on Ruckert, Walker, and Roering's (1985) contingency perspective of organizational structure and the organization of marketing activities, it is argued that the benefits of centralized decision-making are limited to situations in which the firm's export environments are fairly stable (Cadogan et al., 2001). When turbulence in the environment is high, more decentralized structures are required, since this allows the firm to be more adaptive and responsive to its changing information generation, dissemination and responsiveness requirements. The empirical evidence lends only weak support to this notion, however (see Cadogan et al., 2001). Given that the findings of this previous research are not conclusive, and that studies in *non-export-specific contexts* have uncovered some *positive* association between centralization and market orientation (e.g., Pelham & Wilson, 1996), we test the hypothesis that:

H2. The relationship between the degree of centralization of export decision making in firms and their EMO behavior is positive under relatively stable environmental conditions, and negative under relatively turbulent environmental conditions.

3.1.3. Export coordination

Export coordination concerns the interaction between the exporting unit and other business functions (Diamantopoulos & Cadogan, 1996). When export coordination is high, communication patterns between exporting and others within the firm are functional, cooperation is the norm, disruptive conflict is rare, and units share work-related goals (Cadogan et al., 1999). Lower levels of export coordination may be characterized by dysfunctional communication and conflict patterns, a lack of cooperation between work units, and the manifestation of incongruent work-related goals. Research demonstrates that export coordination fosters a desire for export success across functional units within the firm, enables the export unit to leverage appropriate resources within the business, and fosters enhanced EMO behavior (e.g., Cadogan et al., 2002). Thus:

H3a. The relationship between degree of export coordination in firms and their EMO behavior is positive.

We also suggest that environmental turbulence will moderate the relationship between export coordination and EMO behavior. Specifically, we suggest that export coordination is most needed under conditions of high environmental turbulence. Under the latter conditions, export competitive offerings proliferate, technological advances bring new opportunities and threats in firms' export markets, and export customers have more tightly defined requirements (Menon, Jaworski, & Kohli, 1997). In this situation, information relevant to the firm's export market success can originate in numerous sources in the firm, and good relationships with other business functions are critical to ensure that this information is generated and disseminated to the appropriate people within the firm (Diamantopoulos & Cadogan, 1996). Likewise, effective export decision-making is

likely to require export managers to be able to leverage powerful functional groups within their organizations in order to overcome inertia and stimulate continuous adaptation to the rapid changes occurring in the export environment (see Homburg, Workman, & Krohmer, 1999). When the export environment is less turbulent, the information required to manage the firm's marketing activities can be generated using fewer sources, change is less apparent, and there are fewer demands put on export decision-makers (Diamantopoulos & Cadogan, 1996). Accordingly, there is less need for other departments to become involved in EMO behaviors, or to facilitate the export unit in its EMO activities. For this reason, we test the following hypothesis:

H3b. The greater the turbulence in the export environment, the stronger the positive relationship between export coordination and EMO behavior levels.

3.2. Export systems

3.2.1. Export market-oriented reward systems

A market-based reward system is identified as being a key determinant of market orientation in non-export-specific studies of market orientation's antecedents (Jaworski & Kohli, 1993; Pulendran et al., 2000; Ruekert, 1992). Cadogan et al. (2001) extend this logic into the export setting, and argue that if employees are rewarded on export market-based criteria (such as export market share, export customer retention, export customer satisfaction indexes), they are more likely to adopt EMO behaviors. Their findings provide partial support for this notion: while they uncover a positive relationship between export market-based rewards and EMO behavior in their study of New Zealand exporters, in their sample of Finnish exporters, export market-based rewards are not related to EMO behavior. Consequently, in order to further examine the importance of market-based rewards on EMO behavior, we propose to test the following hypothesis:

H4. The relationship between the degree to which firms adopt export market-oriented reward systems and their EMO behavior is positive.

3.2.2. Export market-oriented training systems

Empirical evidence from export (Cadogan et al., 2001) and non-export-specific studies (e.g., Ruekert, 1992) indicates that training employees how to behave is an effective way of developing market-oriented behavior. Not only does training furnish employees with the skills necessary to carry-out export marketing tasks, it can educate them also to be sensitive to the differing needs of foreign customer groups, and help them to become aware of the need to handle cultural, political and economic differences with care. For these reasons, we test the following hypothesis:

H5. The relationship between the degree to which firms adopt export market-oriented training systems and their EMO behavior is positive.

3.3. Export development indicators

3.3.1. Management commitment to exporting

Export commitment is the degree to which management in a firm are favorably disposed towards, and are willing to allocate resources to, exporting (Leonidou, Katsikeas, & Piercy, 1998). Given that senior managers are a key force driving the creation of the values and beliefs held by organizational members (Jaworski & Kohli, 1993; Webster, 1988), it is apparent that they play a fundamental role in determining the behaviors of the business. If managers are not committed to the opportunities afforded by the firm's export involvement, then they are unlikely to allocate the resources or the time and effort required to develop the firm's EMO activities. Therefore:

H6. The relationship between management commitment to exporting and EMO behavior is positive.

3.3.2. Emphasis on export market orientation

Managers need to be more than just committed to exporting. They need also to promote to employees the message that being market-oriented in the firm's export operations can enhance business performance. By reinforcing in staff the importance of EMO behavior, there is greater chance that EMO activities will filter throughout the organization and become accepted within the norms and routines of the business (see Homburg & Pflesser, 2000). The empirical evidence provides strong support for this notion in both the export (Cadogan et al., 2001) and non-export-specific literatures (e.g., Jaworski & Kohli, 1993; Pulendran et al., 2000). Thus:

H7. The relationship between management emphasis on export market orientation and EMO behavior is positive.

3.3.3. Export experience

The degree to which exporters have knowledge and experience of operating in export markets is related positively to their levels of EMO behavior (Cadogan et al., 2001). Specifically, experience helps firms be more market-oriented in their export operations since managers are better able to target information sources, reduce information overload, and summarize and disseminate information effectively (Diamantopoulos & Cadogan, 1996). Also, since the firm knows its markets well and can better predict customer and competitor responses to marketing decisions, planning and implementation efforts become more effective (Cadogan et al., 2002). Thus, we test the hypothesis that:

H8. The relationship between export experience and EMO behavior is positive.

3.4. Export environment

Finally, there is growing support for a contingency theory perspective of the influence of environmental turbulence on market-oriented behaviors. Specifically, turbulent market conditions exert pressure on firms to quickly generate and

disseminate new knowledge about the market place, and to respond rapidly to the changes occurring, while less turbulent conditions appear to merit lower levels of market-oriented behavior (e.g., Avlonitis & Gounaris, 1999; Van Egeren & O'Connor, 1998). Thus, 'environment-market orientation fit' is achieved by adjusting market-oriented behavior levels to match the demands placed on the firm by the environment. Empirical evidence from the exporting context is limited (Cadogan et al., 2001), but also tends to indicate that environmental turbulence is associated with higher levels of EMO behavior. Consequently:

H9. The relationship between export environmental turbulence and EMO behavior is positive.

4. Methods

4.1. Sampling issues

To test our hypothesis in an Asian context, we collected data from Hong Kong manufacturing exporters. This represents something of a unique test of the theory of antecedents to market orientation. On the one hand, Hong Kong's colonial history enables Hong Kong companies to appreciate certain Western concepts (Deshpandé & Farley, 2004). On the other hand, Hong Kong businesses are imbued with traditional Chinese values, which means that Hong Kong firms are separated from their more Western counterparts by significant cultural, as well as geographical, distances (e.g., Ngai & Ellis, 1998). Thus, the choice of Hong Kong manufacturing exporters to test our model responds to Ambler et al.'s (1999) call for research into the transferability of Western export studies into the Asian business context.

To generate the data, we selected a random sample of 800 manufacturing firms with 50 or more employees from the Hong Kong Trade and Development Council internet database system. The sample included businesses from a range of industrial sectors, including textiles and clothing, machinery, electronics and pharmaceuticals. To obtain responses, we contacted all the firms in the sample by telephone to determine eligibility and to elicit cooperation in the study. All firms in the sample were judged to sell products and/or services to industrial or organizational customers. The export manager in those firms agreeing to participate was mailed a questionnaire, a cover letter, and a pre-paid reply envelope. One week after the initial posting, telephone calls were undertaken to increase the response rate. Two weeks after this, a telephone call was made to determine reasons for non-response.

In total, 213 firms were found to be ineligible (e.g., the firm was listed more than once, the firm had never exported, the firm had ceased export trading). A further 278 declined to participate. A total of 309 questionnaires were mailed out, and 137 completed questionnaires were returned, equating to a response rate of 44%. The telephone analysis showed that the two main reasons for non-response and non-participation were, respectively, (1) time constraints, and (2) company policies restricting the giving of information to external parties. In terms

of the sample itself, on average, firms employed 102 people, exported to 10 countries, had been exporting for 18 years, and generated 79% of their sales from their exporting activities. The average annual sales turnover in the sample was approximately HK\$149 million.

4.2. The survey instrument

We used Cadogan et al.'s (2001) measure of EMO behavior to capture the degree to which firms behave in a market-oriented way in their export operations. The instrument contains items to capture firms' levels of export market intelligence generation, dissemination and responsiveness. We included an additional item from Cadogan et al.'s (1999) response scale in the responsiveness measure.

The export formalization and export centralization measures were originally presented by Jaworski and Kohli (1993), but were adapted for the export marketing context by Cadogan et al. (2001), and it is these modified measures that we used. We also borrowed Cadogan et al.'s (2001) export coordination scale, with an additional item from Cadogan et al.'s (1999) coordinating mechanism measure. The export market-oriented reward systems and training systems measures were culled from Jaworski and Kohli (1993) and Ruekert (1992), respectively, but were modified for the exporting setting.

The measure of export commitment was based on items culled from Gencturk, Childers, and Ruekert's (1995) scale of managerial attitudes to international marketing. Jaworski and Kohli's (1993) measure of 'top management emphasis' was modified for the export setting and formed the basis of the emphasis on export market-orientation scale. Export experience was based on Seringhaus' (1991) measure of experiential export knowledge. Finally, to capture export environmental turbulence, we used Cadogan et al.'s (2001) adaptations of Jaworski and Kohli's (1993) measures of competitive intensity and technological turbulence. The original instruments were modified to reflect changes taking place in firms' export markets, not changes taking place in firms' domestic markets.

4.3. Measurement assessment and construction

In order to assess the validity and reliability of the measures, all the scales were examined with confirmatory factor analysis (CFA) using LISREL 8.50 (see Jöreskog & Sörbom, 1993). Following conventional practice (e.g., Baker & Sinkula, 1999), and in order to avoid violating minimum sample size to parameter ratios, the scales were initially analyzed in sub-sets. The first set contained the three EMO behavior scales. The second set contained the export structure measures: export formalization, centralization and coordination. The third set contained the export market-oriented reward and training systems scales. The fourth set contained the export development indicator measures: export commitment, top management emphasis on export market orientation, and export experience. Finally, the fifth set contained the two export environmental turbulence scales.

Table 1
Fit measures for the models

Model	χ^2 (df)	RMSEA	CFI	NNFI	GFI
Measurement (set 1)	39.80 (51) ^a	.000	1.000	1.020	.953
Measurement (set 2)	96.59 (51)	.081	.948	.933	.893
Measurement (set 3)	5.45 (8) ^a	.000	1.000	1.021	.987
Measurement (set 4)	54.66 (41) ^a	.050	.983	.977	.931
Measurement (set 5)	10.22 (8) ^a	.045	.993	.987	.975
Full measurement (all items)	1327.45 (956)	.054	.866	.848	.705
Restricted model	282.59 (208)	.052	.932	.902	.856
Unrestricted model	279.75 (205)	.052	.933	.902	.858

Measurement (set 1): export market intelligence generation, dissemination and responsiveness.

Measurement (set 2): export formalization, centralization and coordination.

Measurement (set 3): export market-oriented reward and training systems.

Measurement (set 4): export commitment, emphasis on export market orientation, export experience. Note: following Cadogan et al. (2001, p. 268), prior to CFA analysis, we used regression analysis to purify each of the ‘emphasis on export market orientation’ items by treating them as dependent variables, using the summed score of ‘export commitment’ items as an independent variable, and saving the residuals.

Measurement (set 5): export market competitive intensity, and export market technological turbulence.

RMSEA=Root mean square error of approximation.

CFI=Comparative fit index.

NNFI=Nonnormed fit index.

GFI=Goodness of fit index.

a: not significant at $\alpha = .05$.

Several items were eliminated from the models because of poor fit and Table 1 provides the final measurement model fit indexes for each of the five measurement models. As can be seen, the fit indexes obtained were good to excellent. As additional tests for discriminant validity, a series of two-factor CFA models was conducted for each possible pair of measures. For each model, the correlation between constructs was set at unity, and then freed. In all cases, the χ^2 decreases were significant.

Appendix A provides a listing of all items used for model testing. For completeness, we also report the results of a ‘full measurement model’ (see Table 1) in which all the remaining scale items were entered simultaneously into a CFA with the

expected measurement model imposed. The sample size was smaller than the number of parameters being estimated; typically, this renders the parameter estimates unreliable, and one would possibly expect this model to return extremely poor fit, an improper solution, or fail to converge (hence the need to analyze scales in sub-sets rather than simultaneously). However, it is worth noting that (a) the model did converge, (b) it returned a proper solution, (c) all the factor loadings were positive and significant, and (d) the fit indexes obtained were surprisingly good. While we rely on our analysis of the smaller item sets to provide parameter estimates (see later analyses), we take the result for this full measurement model as providing support for the robustness of the measurement items used.

The final measurement results for the scales together with a correlation matrix are shown in Table 2. Overall, the results indicate that the scales perform well. Specifically, the measurement model fit indexes and discriminant validity tests indicate that the specified measurement structures fit the data well, and that the scales are unidimensional. Furthermore, the composite reliabilities are all above the recommended threshold of .60 and the majority of average variance extracted scores are above the recommended threshold of .50 (see Bagozzi & Yi, 1988).

5. Analysis

Model testing was undertaken using LISREL 8.50 and the maximum likelihood (ML) estimation procedure. We also followed Ping’s (1995) guidelines for the evaluation of structural models with interaction terms (as an anonymous reviewer noted, this is akin to a path analysis with product interaction terms). In preparation for the analysis, a five-step procedure was undertaken.

5.1. Step one

Single scores were created for the EMO behavior score, and for each of the latent variables involved in multiplicative interactions (export formalization, export centralization, export coordination and export environment). The use of single

Table 2
Summary statistics

	Mean	S.D.	CR	AVE	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Information generation	4.68	1.01	.77	.53	–											
2. Information dissemination	5.01	.91	.84	.51	.17	–										
3. Export market responsiveness	5.39	.88	.83	.56	.38	.14	–									
4. Export formalization	4.64	1.06	.80	.58	.05	–.01	–.04	–								
5. Export centralization	3.74	1.34	.85	.65	.09	–.18	–.12	.29	–							
6. Export coordination	5.17	.97	.92	.66	.42	.25	.46	–.13	–.32	–						
7. Market-oriented rewards	4.52	.99	.71	.45	.24	.12	.42	–.15	.10	.25	–					
8. Market-oriented training	4.81	.91	.81	.59	.30	.17	.44	–.09	–.03	.39	.47	–				
9. Commitment to exporting	7.18	1.24	.91	.68	.24	.11	.46	–.01	–.06	.47	.35	.38	–			
10. Emphasis on market orientation	n/a	n/a	.73	.48	.32	–.03	.09	.04	–.15	.22	.10	.17	–.05	–		
11. Export experience	4.46	.98	.88	.58	.44	.34	.48	–.13	–.24	.64	.39	.44	.41	.30	–	
12. Competitive environment	4.89	1.11	.77	.53	.32	.13	.37	.06	–.05	.18	.35	.29	.31	.05	.30	–
13. Technological environment	4.88	.91	.85	.67	.24	.23	.24	.03	–.06	.13	.30	.31	.08	.17	.19	.43

S.D.: standard deviation.

CR: Composite reliability.

AVE: Average variance extracted.

indicants within interaction-based structural models to reduce model complexity has been recommended in the literature (e.g., Jaccard & Wan, 1996; Ping, 1995). The creation of a score for EMO behavior was undertaken in stages. Initially, a single score was obtained for export market intelligence generation (GEN) by averaging across the scale items; then scores were obtained for dissemination (DISS) and responsiveness (RESP) by averaging across the appropriate scale items. A single score for EMO behavior was obtained by averaging across the GEN, DISS and RESP scores (cf., Cadogan et al., 2001). A similar process was undertaken for environmental turbulence. Here, single scores were created for the competitor (COMP) and technological (TECH) environment measures by averaging across the scale items. A single score was obtained for the export market turbulence by averaging across the COMP and TECH scores. Scores for export formalization, centralization, and coordination were obtained, respectively, by averaging across the item sets.

5.2. Step two

In order to reduce potential problems associated with multicollinearity arising from the introduction of interaction terms in the structural model, the variables involved in multiplicative interactions were mean-centered (Ping, 1994). These mean-centered variables were used from here on.

5.3. Step three

We generated estimates for the factors loadings, error variances, and factor variances of each of the constructs involved in the multiplicative interaction terms. First, a “main effects” only CFA model was run, with the single indicants’ factor loadings set at one. Also, for each of these single indicator variables we set the error variance of the indicator at $[(1-\rho)\times\sigma^2]$, where ρ is the composite reliability of the indicator’s scale (or the average across composite reliabilities in the cases of EMO behavior and export environmental turbulence), and σ is the sample standard deviation of the indicator. The new estimates of the single indicants’ factor loadings and error variances were recorded. The sample variance of each factor was also recorded.

5.4. Step four

We created interaction terms. Here, we multiplied the export formalization score by the export environment score to create a new variable: the ‘formalization–environment’ interaction term. Similarly, using the export centralization and the export coordination scores, we created two other new interaction terms: the ‘centralization–environment’ interaction term and the ‘coordination–environment’ interaction term, respectively.

5.5. Step five

We fed the final factor loading, error variance, and factor variance estimates obtained in Step Three into equations

provided by Ping (1995). This generated estimates of the error variances and factor loadings for the ‘formalization–environment’, the ‘centralization–environment’, and the ‘coordination–environment’ interaction terms.

Having obtained estimates for the loadings and error variances for the interaction terms, two nested models were then specified. In both models, the loadings and error variances for the interaction terms were fixed at their previously estimated values. The first model was a *restricted* model in which the γ parameters linking the ‘formalization–environment’, the ‘centralization–environment’, and the ‘coordination–environment’ interaction terms to EMO behavior were fixed at zero, and the remaining γ parameters were freely estimated. The second model was an *unrestricted* model in which those γ parameters originally fixed at zero were freed. As is shown in Table 1, moving from the restricted model to the unrestricted model resulted in a decrease in χ^2 of 2.84, with an associated decrease of 3 degrees of freedom. Although this is an improvement in fit, it is not significant at $p < .05$, and does not provide conclusive evidence that the unrestricted model is superior to the restricted model. However, by testing for interactions, nonnormal variables are included in the model: this violates the assumption of multivariate normality, and (often severely) biases the χ^2 statistic (West, Finch, & Curran, 1995), rendering formal comparisons of the test statistic in our nested models inappropriate. Thus, our ability to determine which model is superior based on traditional fit indexes is compromised. As a result, we look for other factors to inform our decision on this front. To this end, we compare the percentage of variance explained in EMO behavior across the two models. For the restricted model, the reduced form squared multiple correlation is .655, while for the unrestricted model, the squared multiple correlation is .730. Thus, in absolute terms, we are explaining an additional 7.5% of the variance in the EMO behavior measure in the unrestricted model. This is a substantial increase in variance explained. Furthermore, all three interaction terms return significant path coefficients in the unrestricted model. Given this additional information, we can see that the unrestricted model provides a non-trivial improvement over the restricted model: thus, we use the results from the former when evaluating the hypotheses.

6. Results

Table 3 provides the path estimates and *t*-values for the unrestricted model. The percentage of variance explained for EMO behavior is 73%, a figure that compares well with other studies of antecedents to EMO behavior (see Table 4).

Hypothesis 1 is supported since, although formalization does not return a significant main effect ($\gamma = -.05$, not significant [ns]), the ‘formalization–environment’ interaction term is negative and significant at the 10% level ($\gamma = -.21$, $p < .10$). This finding shows that formalization is positively related to EMO behavior under relatively stable environmental conditions, but is negatively related to EMO behavior under relatively turbulent export environment conditions.

Table 3
Standardized and unstandardized path estimates with EMO behavior as dependent variable for unrestricted model

	Independent variable	Standardized path estimate	Unstandardized path estimate	<i>t</i> -value*
Hypothesis 1	Export formalization	-.05	-.03	-.31
	Export formalization × environmental turbulence	-.21	-.12	-1.40
Hypothesis 2	Export centralization	.33	.16	1.72
	Export centralization × environmental turbulence	.50	.17	1.88
Hypothesis 3a	Export coordination	.41	.26	2.69
Hypothesis 3b	Export coordination × environmental turbulence	.50	.16	1.73
Hypothesis 4	Export market-oriented reward systems	-.10	-.06	-.38
Hypothesis 5	Export market-oriented training systems	.03	.02	.15
Hypothesis 6	Export commitment	-.07	-.04	-.68
Hypothesis 7	Emphasize export market orientation	-.03	-.03	-.31
Hypothesis 8	Export experience	.46	.30	2.89
Hypothesis 9	Export environmental turbulence	.53	.39	2.62

*Critical *t*-values: when $\alpha = .05$, critical *t*-value = 1.645; when $\alpha = .10$, critical *t*-value = 1.282 (since all hypotheses are directional, we use one-tailed tests).
Reduced form squared multiple correlation for EMO behavior = .73.

Hypothesis 2 is not supported. Here, the hypothesis predicts that the ‘centralization–environment’ interaction term will return a significant negative coefficient. Contrary to expectations, however, a significant positive coefficient is obtained ($\gamma = .50, p < .05$). This, together with the finding of a positive

Table 4
Comparing results of antecedents to EMO behavior in Hong Kong with previous studies*

Independent variable	Hong Kong	New Zealand	Finland	USA
Export formalization	ns	ns	ns	
Export formalization × environmental turbulence	-	-	+/- ^a	
Export centralization	+	ns	-	
Export centralization × environmental turbulence	+	-	-	
Export coordination	+	+	+	+
Export coordination × environmental turbulence	+			
Export market-oriented reward systems	ns	+	ns	
Export market-oriented training systems	ns	+	+	
Export commitment	ns	+	+	+ ^b
Emphasize export market orientation	ns	+	+	
Export experience	+	+	+	- ^{c/+^d}
Export environmental turbulence	+	+	+	
Squared multiple correlation (<i>R</i> -square)	.73	.77	.77	.47

*: empty cells indicate that the independent variable is not included in the study.
ns: the relationship is not significantly different from zero.
+: indicates that significant positive coefficients are returned.
-: indicates that significant negative coefficients are returned.
a: the study also contains a measure of regulatory turbulence: against expectations, the interaction between formalization and regulatory turbulence returns a significant and positive coefficient.
b: the study does not contain a measure of managers’ commitment to exporting, but uses a proxy for commitment—export dependence (percentage of sales attributed to exporting).
c: the study does not contain a multi-item scale to capture experience: instead it contains a measures of experience based on the number of years the firm had been exporting: this is negatively related to EMO behavior.
d: the study also contains a measure of experience based on the number of countries to which the firm exports: this is positively related to EMO behavior.

main effect ($\gamma = .33, p < .05$), indicates that centralized export decision-making has a negative relationship with EMO behavior levels under conditions of relative environmental stability, and has a positive relationship with EMO behavior levels under conditions of relative environmental turbulence. Decentralized decision-making structures allow export employees to become more involved in the decision-making process. While this may engage those ‘at the coal face’ and enable a flexible and responsive decision-making process, it assumes also that these employees have suitable access to the firm’s export markets and that they can make robust decisions founded on solid market knowledge. However, in Hong Kong, businesses are separated from many of their markets by large geographic distances, and thus when the export market environment is highly turbulent, export employees may no longer have suitable access to all the relevant stakeholders needed to keep abreast of changes in the environment (e.g., government members, managers of competitor firms). In this situation, centralized decision-making may be more efficient if top management is better positioned to generate and disseminate important market information. Furthermore, the kinds of decisions that may need to be made in very turbulent market conditions may mean that it is more suitable for a centralized management team to be in control of the firm’s export market responsiveness activities. For instance, decisions regarding product introduction, elimination, or customization may need to be made by someone higher up the hierarchy to get buy-in from the work force, and to ‘see the decision through’ (e.g., O’Keefe & O’Keefe, 1997).

Hypothesis 3a is supported since export coordination returns a significant relationship with EMO behavior ($\gamma = .41, p < .05$). Thus, consistent with findings reported in other studies of EMO behavior’s antecedents, export coordination is once more confirmed as being an important determining factor. However, we also test a new hypothesis regarding the relationship between export coordination and EMO activity. Specifically, Hypothesis 3b suggests that the relationship between export coordination and EMO behavior is positively moderated by environmental turbulence. We find support for this hypothesis ($\gamma = .50, p < .05$). Thus, export coordination is less important for

EMO behavior under conditions of relative environmental stability. However, in turbulent, aggressive and rapidly changing market conditions, export coordination becomes critical, since interfunctional collaborative efforts are required to better understand and respond to the changes posed by the environment.

Hypothesis 4, regarding export reward systems, is not supported ($\gamma = -.10$, ns). This finding mirrors findings for reward systems in Finnish firms (Cadogan et al., 2001), but contradicts findings for reward systems in New Zealand (Cadogan et al., 2001): in the latter, export market-oriented rewards are positively related to EMO behavior. Possibly, this may indicate that incentive systems which work in more individualist cultures (e.g., New Zealand, USA) may not work as well in (relatively) more collectivist societies (e.g., Hong Kong, Finland). Additional research is required on this front.

Hypothesis 5, suggesting that export market-oriented training is positively related to EMO behavior, is not supported ($\gamma = .03$, ns). This is somewhat surprising, since training is identified as a key driver of market-oriented behavior in both export-specific (Cadogan et al., 2001) and non-export-specific studies (Ruekert, 1992). Possibly, national culture differences may explain this finding. Specifically, Hong Kong is a collectivist society with relatively high power distance. This combination of mentalities tends to promote dependence and reduce motivation to act independently (see O'Keefe & O'Keefe, 1997). Consequently, in Hong Kong, while export market-oriented training programs will be valued by company employees (Taormina, 1998), they may be more successful in encouraging EMO activity in the firm if the training programs simultaneously promote independent EMO behavior and self reliance to determine when EMO activity is required. Clearly, this tentative explanation requires future research attention.

Both Hypothesis 6 ($\gamma = -.07$, ns) and Hypothesis 7 are rejected ($\gamma = -.03$, ns). Thus, neither managers' commitment to exporting nor the degree to which they emphasize export market orientation are important predictors of EMO behaviors. Once more, these findings contradict 'conventional wisdom', and appear also to be at odds with the traditional view of Chinese respect for authority (e.g., O'Keefe & O'Keefe, 1997). However, behaving in a market-oriented way in the firm's export markets requires proactive behavior, acceptance of responsibility for one's actions, and cross-functional coordination (Cadogan et al., 1999). Yet as a rule, the Chinese emphasize vertical relationships and may view EMO activity (i.e., information exchange and response design) as promoting offensive behavior if it entails cutting horizontally across functions to resolve issues (O'Keefe & O'Keefe, 1997). Thus, managers who express their commitment to exporting and emphasize the importance of market orientation may be opposed by Chinese employees' cultural reluctance to accede to a managerial intervention that they may see as being a personal imposition (see Lau & Ngo, 2001). Alternatively, while Chinese management expect loyalty and obedience, they also tend to be more secretive, fostering political use of market information within the firm and, by supervising employees closely, suppressing individual initiative (Bjerke, 2000; Tse,

Lee, Vertinsky, & Whrung, 1988). Consequently, management styles and cultural norms may override the influence of managers' attitudes to exporting, or their enthusiasm for being market-oriented in export operations. Undoubtedly, more research is required to fully understand these issues.

Hypothesis 8 is supported ($\gamma = .46$, $p < .05$), indicating that export experience is positively related to EMO behavior. Experience may act to increase a firm's EMO behavior on two levels. First, experience may provide businesses with knowledge of information sources and an intuitive understanding of market responses to marketing plans. Second, export experience may furnish firms with exposure to Western business practices, and may reduce cultural barriers to the development of market-oriented behaviors (cf., Sin, Tse, Yau, Chow, & Lee, 2003).

Finally, the relationship between environmental turbulence and EMO behavior is positive and significant ($\gamma = .53$, $p < .05$), providing support for Hypothesis 9. Thus, the additional informational demands placed on the firm when operating in turbulent environmental conditions, and the need to respond in new and innovative ways, appear to be key drivers of the firm's EMO behavior.

7. Discussion and research implications

Research into antecedents to EMO behavior uses samples of US, European and New Zealand exporters. Generalizing from these studies to export marketing contexts in other countries can be misleading (Katsikeas, Peircy, & Ioannidis, 1996), especially when considering export behaviors in non-Western business environments (Ling-ye, 2004) and industrial manufacturer samples in particular. For this reason, the purpose of this study is to investigate the factors facilitating and inhibiting EMO activity in a non-Western country. Using a sample of Hong Kong-based industrial manufacturing exporters, we successfully identify several key determinants of EMO activity, and therein explain a large percentage of variance (73%). Importantly, our findings indicate that concerns are justified over the generalizability of exporting theory generated and tested only in typically Western countries with limited account taken specifically of business-to-business contexts. Specifically, we uncover several instances where the theory of EMO behavior's antecedents does not hold for this type of Hong Kong exporter.

Table 4 provides a comparison of the current study and Cadogan and colleagues' studies into EMO behavior in New Zealand, Finland and the USA. It can be seen that there are some important differences between the results reported by the latter studies and the findings we uncover in Hong Kong. For instance, in our Hong Kong firms, not only did centralization return a positive main effect, it also returned a positive interaction effect. The managerial implication of this is that some decentralization of decision-making may have a positive influence on EMO behavior in Hong Kong firms—but only when the export environment is stable. During condition of environmental turbulence, centralized decision-making is more effective.

This finding can be explained by the norms of Chinese national culture whereby employees prefer and expect

centralized decision-making within their organizations. However, in Europe or New Zealand, the intra-organizational social dynamics and expectations are markedly different. Cadogan et al. (2001) show that in these countries, centralization *inhibits* EMO behavior and suggest that *decentralized* decision-making is recommended under conditions of environmental turbulence. The danger of generalizing results from Western businesses to Asian firms is clear. More especially, this finding sheds light on the decision-making locus in industrial firms; wherein we find that the nature of these firms, and the characteristic complexity of their customer solutions, demands that a coherence be brought to bear in centralizing decision-making activities, irrespective of the degree to which the environment is turbulent.

Furthermore, variables that are found to be critical in determining EMO behavior in Western exporters are not found to have the same influence in Hong Kong. Based on European and US studies, it is recommended that firms develop export market-oriented reward and training systems, and that managers demonstrate their commitment to exporting and emphasize the importance of EMO behavior in the firm's export operations. However, since these findings do not hold in Hong Kong, one cannot say with confidence that investing in new reward and training systems will positively influence EMO activity. Similarly, since managers' expressions of commitment to exporting and emphasis on being market-oriented in export markets were not associated with EMO activity, it is also not possible to say that in Hong Kong, simply possessing positive export-related attitudes is a necessary and sufficient condition to increase EMO activity in the firm. Once again, the distinctiveness of the industrial export manufacturer context implies that these factors also play a limited role due, in part, to the nature of their customer offering(s). This means that the EMO behaviors necessary in taking the product to the export market do not make demands of these intrinsic and extrinsic characteristics.

There are, however, several findings that are consistent across the research studies. Crucially, export coordination, export experience and export environmental turbulence are all identified as having positive significant main effects on EMO activity. Although environmental turbulence is not directly managed by the firms, other variables can be. In particular, export experience can be acquired or developed organically (Cadogan et al., 2001), and coordination can be fostered through careful management of inter-functional interactions (see, e.g., Menon et al., 1997; Morgan & Piercy, 1998).

That said, our findings shed new light on the role of export coordination since we identify a significant interaction with the level of environmental turbulence. From a managerial perspective, this result indicates that the task facing Hong Kong industrial manufacturing exporters is to ensure that there are smooth relationships between the exporting unit and other business functions, particularly under conditions of environmental turbulence. Here, dysfunctional conflict and poor communication patterns between functional units is detrimental to the development of market-oriented export information flows and market-oriented export response behaviors.

8. Limitations and future research

Typical of research into market orientation, our study is cross-sectional, and causal inferences must be drawn with caution. Future researchers may wish to consider ways of overcoming this weakness in method through the use of longitudinal designs (e.g., see Dawes, 2000). On a similar front, our research focuses on identifying antecedents to EMO behavior under the assumption that EMO activity is beneficial for business success in most situations: future researchers may also wish to investigate this assumption using longitudinal designs in order to shed more light on the benefits of developing EMO behaviors within the firm.

It is also the case that while 44% of all questionnaires mailed out were returned, a large percentage of firms did not respond. Although our response rate is quite high (and is excellent relative to other survey studies in the market orientation field), thus reducing the concern that non-response bias is a threat in this study, future researchers may wish to go to greater lengths to increase response rates in order that their findings can be generalized with even more confidence. Furthermore, two of our scales returned AVEs below the recommended threshold level of .50 (export market-oriented reward systems and emphasis on export market orientation). In order to increase the explanatory power and confidence in the findings of any replication of the current study, effort should be put in to improving the psychometric properties of these scales.

Our coverage of antecedent variables for investigation is driven by the work of Cadogan and colleagues' studies of EMO behavior in samples of Western exporting businesses. It should be noted, however, that while a good proportion of the variance in EMO activity is explained in our sample of Hong Kong manufacturers, the model does not identify all possible culture-specific determining factors. New insights into the conditions facilitating and inhibiting EMO behavior in Asian businesses may be obtained by searching for new variables to add to our model. For instance, in Hong Kong, it may be that foreign-owned and managed businesses are run differently from locally owned businesses, such that cultural differences in management style partly determine the EMO behavior levels of such firms. Similarly, it could be that it is the design and implementation of export market-oriented reward and training systems that is critical for Hong Kong firms: rewards which are oriented toward the group may be more successful than individualized rewards, for instance, while training programs may need to be tailored to the needs of Chinese employees by promoting independent and self-reliant EMO behavior. Future research studies wishing to investigate these issues will need to modify their measures of rewards and training accordingly, in order that valid conclusions can be drawn.

It is also the case that, in this study, we use a global measure of environmental turbulence (following Cadogan et al., 2002) to test for moderator effects and predict EMO behavior directly. Yet it is possible that a global operationalization of environmental turbulence hides unique influences of the environment. Furthermore, while we include aspects of the competitive and technological environment in

our global assessment, other dimensions may also play an important role in determining EMO behavior levels. Future researchers may find it beneficial to model the environmental dimensions separately, and to include new aspects of the environment in their models (e.g., the mixture of cultures and markets the firm deals with, the political and economic turbulence in the firm's export markets). Additionally, it would be enlightening if we could extend this model further by assessing not only the antecedents but also the performance consequences of EMO behaviors. However, rather than merely incorporate a battery of the prevailing export performance measures, caution should be exercised in identifying and selecting the most appropriate and theoretically relevant measures to future studies. Guidance recommended by Katsikeas, Leonidou, and Morgan (2000) and Morgan, Kaleka, and Katsikeas (2004) should assist in this process, appreciating that export performance is a multifaceted concept.

Finally, we suggest that researchers should also look to exploit the positive findings uncovered in this study. In particular, export experience and export coordination are both found to have positive relationships with EMO activity (albeit that coordination's association was moderated by environmental turbulence). Consequently, it would be beneficial for future researchers to focus on identifying mechanisms by which export experience can be fostered and developed within the firm. Similarly, export coordination must be managed carefully to leverage its productive qualities, and hence research to identify methods and conditions which can help cultivate appropriate levels of export coordination is merited.

Appendix A. Scale items [factor loadings in parenthesis]

Export Market Intelligence Generation (7-point scale with *very strongly disagree/very strongly agree* anchors)

1. In this company, we generate a lot of information concerning trends (e.g., regulations, technological developments, political, economic) in our export markets [.64].
2. We periodically review the likely effect of changes in our export environment (e.g., regulation, technology) [.76].
3. We generate a lot of information in order to understand the forces which influence our overseas customers' needs and preferences [.79].

Export Market Intelligence Dissemination (7-point scale with *very strongly disagree/very strongly agree* anchors)

1. Too much information concerning our export competitors is discarded before it reaches decision makers [.56].^R
2. Information which can influence the way we serve our export customers takes forever to reach export personnel [.73].^R
3. Important information about our export customers is often 'lost in the system' [.66].^R

4. Information about our export competitors' activities often reaches relevant personnel too late to be of any use [.77].^R
5. Important information concerning export market trends (regulation, technology) is often discarded as it makes its way along the communication chain [.82].^R

Export Market Responsiveness (7-point scale with *very strongly disagree/very strongly agree* anchors)

1. If a major competitor were to launch an intensive campaign targeted at our foreign customers, we would implement a response immediately [.80].
2. We are quick to respond to significant changes in our competitors' price structures in foreign markets [.78].
3. We are quick to respond to important changes in our export business environment (e.g., regulation, technology, economy) [.67].
4. We rapidly respond to competitive actions that threaten us in our export markets [75].

Export Formalization (7-point scale with *very strongly disagree/very strongly agree* anchors)

Generally, in this company...

1. Export people are their own boss in most matters [.63].
2. Export people can make their own decisions without checking with anybody else [.96].
3. How things are done is left up to the export employee doing the work [.64].

Export Centralization (7-point scale with *very strongly disagree/very strongly agree* anchors)

Generally, when it comes to export decision making in this company...

1. Even small matters have to be referred to someone higher up for a final answer [.65].
2. Export people have to ask their boss before they do almost anything [.92].
3. Export employees need to have the boss' approval first [.84].

Export Coordination (7-point scale with *not at all/to an extreme extent* anchors)

With a special emphasis on export employees, consider the interaction between and within functional areas/departments in your firm...

1. Employees in the export unit and those in other functional areas (e.g., R & D) help each other out [.76].
2. In this company, there is a sense of teamwork going right down to the 'shop floor' [.87].
3. There is a strong collaborative working relationship between export and 'production' [.82].
4. Functional areas in this company pull together in the same direction [.82].

5. The activities of our business functions (e.g., marketing/sales, manufacturing, R & D, finance/accounting, etc.) are integrated in pursuing a common goal [.88].
6. We resolve issues and conflicts through communication and group problem-solving [.69].

Export Market-Oriented Reward Systems (7-point scale with *very strongly disagree/very strongly agree* anchors)

Generally, in this company...

1. Export salespeople's performance is measured by the strength of relationships they build with export customers [.70].
2. We use export customer surveys for evaluating our export salespeople [.68].
3. Reward systems encourage employees to focus on increasing export customer satisfaction [.63].

Export Market-Oriented Training Systems (7-point scale with *very strongly disagree/very strongly agree* anchors)

In this company...

1. Our management encourage training that will help employees become better export customer-oriented [.75].
2. Our management view export market training as an important investment [.84].
3. We devote substantial resources to developing the marketing expertise of our export employees [.71].

Leaders' Commitment to Exporting (9-point scale with *disagree/very strongly agree* anchors)

Senior management in our company....

1. Consider our exporting activities to be important [.86].
2. Intend to increase the company's exporting activities [.88].
3. Consider exporting to be a valuable investment of resources [.90].
4. Expect exporting to have a positive effect on company performance [.76].

Leaders' Emphasis on Export Market Orientation (9-point scale with *disagree/very strongly agree* anchors)

In this company our export management team emphasizes that...

1. It is vital to adapt to trends in the export markets [.60].
2. Employees must be sensitive to the activities of the export competitors [.73].
3. We must gear up now to meet export customers' future needs [.73].

Export Experience (7-point scale with *skill poorly developed/skill very well developed* anchors)

In this company we have developed...

1. The ability to identify sources of export market information [.86].
2. A base of specific information on export sales opportunities [.80].
3. A base of specific information on overseas market legislation/regulations relative to our company's products/business [.75].
4. An ability to interpret the degree of quality of export market information [.80].

Competitive Turbulence in the Firm's Export Markets (7-point scale with *not at all/to an extreme extent* anchors)

1. In our export markets, there are many 'promotion wars' [.70].
2. One hears of a new competitive move in our export markets almost every day [.75].
3. In our foreign markets, aggressive selling is the norm [.72].

Technological Turbulence in Firm's Export Markets (7-point scale with *not at all/to an extreme extent* anchors)

Regarding the impact of technology in your export business...

1. The technology in our industry is changing rapidly [.62].
2. Technological changes provide big opportunities in our industry [.86].
3. A large number of new product ideas have been made possible through technological breakthroughs in our industry [.93].

R: reverse coded.

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