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# The EXPERF Scale: A Cross-National Generalized Export Performance Measure

*A large number of studies have attempted to identify factors that are correlated with exporting success. However, much controversy exists about the key determinants of export performance and their relative importance. A major reason for this lack of consensus is the absence of a unified measure for capturing export performance. In this study, an attempt is made to develop a generalized export performance measure, the EXPERF scale, that can be applied to multiple countries. Results from a survey of top executives of U.S. and Japanese exporters support a three-dimensional scale for measuring export performance. The three dimensions of the export performance (EXPERF) scale are financial export performance, strategic export performance, and satisfaction with export venture. Implications of the study for further research and managerial practice are also discussed.*

Issues such as what factors determine a firm's export performance and how a firm's performance in export markets can be improved have received considerable research attention in recent years (e.g., Aaby and Slater 1989; Cavusgil and Zou 1994; Christensen, da Rocha, and Gertner 1987; Cooper and Kleinschmidt 1985; Diamantopoulos and Schlegelmilch 1994). The interest in export performance reflects both a macro policy concern associated with exporting and a micro focus on competitiveness in export markets. At the macro policy level, governments around the world are concerned about ways to improve their firms' performances in export markets, because exports are considered an engine of economic growth. In the United States, for example, the government is concerned about large trade deficits with major trading partners. In the last few years, the United States has run a trade deficit with Japan of more than \$40 billion a year. This has prompted the government to become interested in export promotion and in improving the export performance of U.S. firms (Czinkota and Ronkainen 1995).

At the micro level, there has been a wide recognition that success in the domestic market does not guarantee success in foreign markets and that unique strategies are needed to succeed in export markets (Cavusgil and Zou 1994). Consequently, it is not surprising to find that many studies have attempted to link export performance to factors such as organizational characteristics (e.g., Diamantopoulos and Schlegelmilch 1994; Holzmuller and Kasper 1991), product characteristics (McGuinness and Little 1981), export market

## ABSTRACT

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characteristics (Cooper and Kleinschmidt 1985; Dominguez and Sequeira 1993), and export marketing strategy (Cavusgil and Zou 1994; Cooper and Kleinschmidt 1985).

Although previous research has contributed to advancing the knowledge of the determinants of export performance, there are several conflicting findings in the literature. A major cause of this inconsistency is a lack of consensus with regard to how export performance should be measured (Aaby and Slater 1989; Cavusgil and Zou 1994). Export performance has been measured by a myriad of indicators, including export sales, export growth, export profitability, export market share, attainment of export goals, export intensity, and perceived success, among others. Without a unified performance measure, findings of different export studies are difficult to compare, leaving considerable room for inconsistency and confusion.

Another void in the current literature is that most exporting studies have been conducted in a one-country context (e.g., the United States, Canada, a European country, Brazil). The performance measures used in these studies often reflect the unique emphasis that different countries place on exporting. To make research findings comparable across countries, it is necessary to develop an export performance measure that can be used across countries.

The purpose of the present study is to develop a broad export performance measure, the EXPERF scale, which is applicable to both U.S. and Japanese exporters. The study is designed to contribute to the literature by offering an export performance measure that facilitates integration of the existing literature and can be used cross-nationally. Adopting this performance measure in future export inquiries will likely make findings comparable and help eliminate the inconsistencies in the literature. The remainder of this article is organized into several sections. First, an overview of the current literature is offered to lay the foundation for the study, and a generalized export performance measure is proposed: the EXPERF scale. Next, the methodology adopted in this study is described. Then, the research findings are presented. Finally, the implications of the findings are discussed.

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## CURRENT MEASURES OF EXPORT PERFORMANCE

Many studies have researched the determinants of export performance. Over time, five broad groups of determinants of export performance have been identified. These groups of factors are: firm characteristics (Aaby and Slater 1989; Diamantopoulos and Schlegelmilch 1994), product characteristics (Cavusgil and Zou 1994; Cooper and Kleinschmidt 1985; Das 1994; Holzmuller and Kasper 1991; Styles and Ambler 1994), market characteristics (Cavusgil and Zou 1994; Holzmuller and Kasper 1991; Styles and Ambler 1994), industry characteristics (Holzmuller and Kasper 1991), and export marketing strategy (Aaby and Slater 1989; Cavusgil and Zou

1994; Cooper and Kleinschmidt 1985; Dominguez and Sequeira 1993; Madsen 1989).

Prior research has certainly enhanced the understanding of the determinants of export performance. However, the knowledge is still far from being perfect. As can be seen from the review work of Aaby and Slater (1989) and Fraering (1996), a pattern of inconsistent and conflicting findings still exists in the literature for all groups of the determinants of export performance. One major problem is the lack of a uniform measure of export performance (see Cavusgil and Zou 1994, p. 2). Another problem is that most previous studies were conducted in a one-country context. Studies conducted in different countries have tended to use different measures of export performance. Thus, one way to reconcile the inconsistency problem is to develop and adopt a generalized export performance measure that can be applied to multiple countries.

Broadly speaking, export performance has been measured in three different ways. These three means of measuring export performance are associated with different conceptualizations of the construct. The most common means of conceptualizing and measuring export performance focuses on the financial outcomes of exporting. The underlying belief here is that exporting is part of a firm's marketing program. Thus, it follows that the performance of an export venture should be gauged in the same way that marketing operations are gauged, namely, in financial terms. Studies adopting this view of export performance have generally measured export performance by such indicators as export sales (e.g., Cavusgil 1984; Cooper and Kleinschmidt 1985; Czinkota and Johnston 1983; Madsen 1989; McGuinness and Little 1981), export sales growth (Cooper and Kleinschmidt 1985; Madsen 1989), export profits (Bilkey 1982; Johnson and Arunthanes 1995; Madsen 1989), and export intensity (export/sales ratio) (Axinn 1988; McGuinness and Little 1981).

Another major means of conceptualizing export performance is based on capturing the strategic outcome of exporting. The main thrust here is that firms often have a set of strategic goals, as well as financial goals, in exporting (Cavusgil and Zou 1994). This view holds that attainment of strategic goals such as improved competitiveness, increased market share, or strengthened strategic position should be considered an integral part of export performance. Studies that adopt this view often measure export performance as the attainment of strategic goals such as market share, strategic presence in the export market, or competitive position (e.g., Cavusgil and Kirpalani 1993; Cavusgil and Zou 1994; Johnson and Arunthanes 1995).

Still another conceptualization of export performance advocates the use of perceptual or attitudinal measures of perfor-

mance. The logic behind this conceptualization is that being positively disposed toward exporting and/or satisfied with exporting operations is a strong indication of success in exporting. Studies with this perspective tend to measure a firm's export performance either directly, such as perceived export success and satisfaction with the export ventures (Cavusgil and Zou 1994; Christensen, da Rocha, and Gertner 1987) or indirectly as the firm's attitudinal changes toward exporting, such as propensity to export (Denis and Depelteau 1985), attitude toward exporting (Johnston and Czinkota 1982), and attitude toward overcoming barriers to exporting (Bauerschmidt, Sullivan, and Gillespie 1985).

The different measurement schemes for export performance make it difficult to compare the findings of different studies. When conflicting findings are obtained by studies that employ different measurement schemes for export performance, it is almost impossible to ascertain whether the conflicting findings can be attributed to the independent variables studied or to the use of different measurement scales of export performance. The issue is also complicated by the fact that some studies have also measured export performance as a composite of several types of indicators (e.g., Cavusgil and Zou 1994; Das 1994). As a result of the use of different measurement schemes, it is difficult to assess which of the five broad sets of factors (or which individual factors) posited to have an impact on export performance are the strongest predictors.

In addition to the measurement issue, there has not been sufficient effort expended toward developing a scale that can be applied to more than one country. Many previous studies have been conducted in a single-country context. Studies have been conducted, for example, in the United States, Canada, Brazil, various European countries, and Turkey. Few (e.g., Burton and Schlegelmilch 1987; Diamantopoulos and Schlegelmilch 1994) were conducted in multiple countries simultaneously. Moreover, with their different focuses, these studies did not explicitly assess whether the scales employed in multiple countries possessed cross-national consistency. If the export performance measure (particularly the perceptual measure) used for one country could not be generalized to another, it would not be meaningful to compare the research findings of studies conducted separately in each country. Hence, if findings from studies conducted in different countries are to be compared, there is a need to develop and test a scale for measuring export performance that is reliable and consistent across countries. Therefore, to advance the literature, it is imperative that a generalized conceptualization and scheme for measuring export performance be used in future endeavors.

In light of the issues discussed here, this study attempts to develop a broad conceptualization and measurement scale of export performance that can be applied to multiple countries. The research is based on the notion that export performance should be conceptualized broadly so that (1) it is measurable at the export venture level (that is, the product-market level); (2) it incorporates the major perspectives of export performance used in previous studies; and (3) it is consistent with the existing export performance measures used by studies in different countries. Specifically, performance of an export venture is defined as the financial and strategic performance of the export venture and the firm's satisfaction with the export venture.

This conceptualization of export performance has several features. First, it is focused on the export venture performance related to one product and one market. This overcomes the potential difficulties involved in the attempt to measure firm level export performance. Second, it combines the three primary means of measuring export performance that have been used in prior studies: financial export performance, strategic export performance, and satisfaction with the export venture (Cavusgil and Zou 1994). As such, the new conceptualization helps integrate the existing literature. Finally, it is also consistent with the export marketing literature generated in various countries and in line with the literature on global marketing (e.g., Yip 1989; Zou and Cavusgil 1996). As mentioned, this conceptualization is intentionally chosen to be broad so that the diverse criteria/objectives of different firms, as well as different countries, can be incorporated into it. In essence, the argument is that the measurement scales for export performance need to include items that are drawn from multiple perspectives of previous studies conducted in various countries. In this way, the scale will reflect the fact that firms in different countries may tend to emphasize different types of performance measures (e.g., financial versus strategic) for cultural, economic, or sectoral reasons.

Thus, building on previous exporting literature (e.g., Aaby and Slater 1989; Cavusgil and Zou 1994; Diamantopoulos and Schlegelmilch 1994; Holzmuller and Kasper 1991) and the prior discussion on the different perspectives of export performance, the following propositions are advanced:

- P<sub>1</sub>: Performance of an export venture can be decomposed into three dimensions: financial export performance, strategic export performance, and satisfaction with the export venture.
- P<sub>2</sub>: The three-dimensional structure of export performance is generalizable across countries.

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## METHODOLOGY

### Sampling Frame

The data used in this study are drawn from a large cross-cultural study of the factors involved in a firm's choice of foreign market entry mode. Manufacturing firms from the United States and Japan were targeted in the study. Following Cavusgil and Zou's (1994) suggestion, the unit of analysis in this study is the individual product-market export venture.

The United States and Japan provide an excellent context for testing the proposed conceptualization of export performance and developing a measurement scale that is applicable across the countries, because these countries are the world's two largest economies in terms of gross domestic product, yet they exhibit significant cultural differences (e.g., Hofstede 1980). Conceptually, the use of a multidimensional export performance scale in these two countries is appropriate, because it has frequently been observed that many Japanese companies tend to emphasize long-term strategic goals, in contrast to the frequent emphasis on financial performance measures in the United States (e.g., Camargo and Saito 1995). Of course, managers in both countries are likely to be concerned about all three dimensions of export performance, at least to some extent. However, the use of a three-dimensional measure takes into account the fact that different countries may place differential emphasis on the dimensions.

The sampling frame of U.S. and Japanese firms was identified using *Dun and Bradstreet's American Corporate Families* and *Dun's Asia/Pacific Key Business Enterprises*. These sources listed the firm's annual sales, number of employees, and key contact persons. In all, more than 1000 U.S. and 1000 Japanese firms were identified. Because the focus of this study is on exporting, and firms were asked to assess a "recent venture into a foreign market," only the responses of those firms that reported on an exporting venture are included in the analysis.

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### Questionnaire and Measures

A structured survey questionnaire was developed using a multistage process. The portion of the questionnaire that dealt with export performance was developed following several steps. First, prior literature was reviewed to identify the previously used measures of export performance. Second, based on the identified measures, a list of items was assembled and then expanded into Likert-type statements answered on a five-point scale ranging from "strongly disagree (1)" to "strongly agree (5)."

Third, the questionnaire items were pretested, via personal interviews with three U.S. executives and three Japanese executives responsible for international market ventures, and with several academicians familiar with exporting research. Based on feedback from these interviews, some items were modified. Prior to finalizing the questionnaire, the survey

was administered to several U.S. and Japanese business executives in order to evaluate the validity of the revised items and the amount of time it took to complete the survey. After incorporating feedback from these additional pretests, the English version of the questionnaire was finalized.

The questionnaire was later translated into Japanese and back-translated into English following Douglas and Craig's (1983) framework. The translation work was performed by a team of academics teaching in a Japanese language department, including one person with considerable business experience in Japan and one native speaker of English who was fluent in Japanese. The initial and back-translated English versions of the questionnaire were compared in order to ensure that equivalent items were being measured in the two languages. Minor discrepancies were identified and reconciled by modifying the wording of a few items.

In the finalized questionnaire, nine items were included to measure export performance. Specifically, these items were: export profits, export sales, export sales growth, contribution of the export venture to firm's competitiveness, strategic position, market share, perceived success of the venture, satisfaction with the venture, and the degree to which the venture is meeting expectations. All nine items were assessed on five-point Likert scales. In filling out the questionnaire, respondents were instructed to focus on one product-market venture when responding to the questions. Collectively, these items are designed to provide a generalized measure of the three proposed export performance dimensions that can be used in multiple countries. Hence, it is hereafter referred to as the EXPERF scale.

In filling out the portion of the questionnaire dealing with export performance, managers were asked to provide their own assessment of the performance of a recent venture into a foreign market. Perceptual measures have been widely employed in prior studies of company performance (Narver and Slater 1990). Although the use of managerial perceptions can introduce a potential subjective bias, it is worth noting that prior studies have observed a strong correlation between managerial perceptions of performance and objective measures of performance (e.g., Dess and Robinson 1984; Pearce, Robbins, and Robinson 1987).

It should be noted that the nine items included in the EXPERF scale have been previously used by some researchers on an individual basis. However, no prior study has used all of these items simultaneously. Although each item is thought to represent one of the three major perspectives on export performance, the specific factor structure of these items needs to be established by the empirical data. If the propositions are true, factor analysis should confirm that three dimensions



underlie the U.S. and Japanese exporters' performances. Moreover, the three dimensions should clearly indicate, based on the substantive meanings of the items, the financial and strategic performance of, and the satisfaction with, the export venture.

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## Data Collection

Data collection involved three mailings. In the initial mailing, a personalized cover letter, a questionnaire, and a postage-paid business reply envelope were sent to the chief executive officer, president, or vice president for international operations of each of the 1024 U.S. and 1189 Japanese firms in the sampling frame. Four weeks later, the second mailing started, which involved sending a replacement copy of the questionnaire and a postage-paid business reply envelope to those who had not responded to the first mailing. Four weeks after the second mailing, the third mailing was again sent to those who had not responded to the first two mailings.

For the United States, 55 questionnaires were returned undelivered, and 51 that were returned were from ineligible respondents (generally because they indicated that they were no longer involved in international operations). Of the remaining 918 questionnaires, 165 usable responses were obtained, resulting in an effective response rate of 18.0%. Sixty-three of the usable responses were exporting cases.

For the Japanese survey, 107 questionnaires were returned undelivered, and 64 more were returned by ineligible respondents. Of the remaining 1018 questionnaires, 178 usable responses were obtained, for an effective response rate of 17.4%. Fifty-six of the usable responses were exporting cases. Considering that the respondents were top executives at leading exporters, this response rate compares favorably to those obtained in similar studies (e.g., Yang, Leone, and Alden 1992). Nevertheless, it must be acknowledged that the sample sizes in this study are relatively small and, hence, that the results of the study should be regarded as suggestive rather than conclusive.

The specific characteristics of the two samples are shown in Table 1. Based on t-tests, it is found that the U.S. sample and the Japanese sample are similar in terms of annual sales and number of years of international involvement. Hence, the U.S. sample is comparable to the Japanese sample in terms of size and international experience.

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## Assessment of Nonresponse Bias

Potential nonresponse bias was assessed by comparing the responding firms with nonresponding firms in terms of annual sales and number of full-time employees, the only comparative data available for both responding and nonresponding groups. Using t-tests, it is found that for both the U.S. sample and the Japanese sample, responding firms are not statistically different from the nonresponding ones.

Characteristics	Category	Percentage of Sample	
		U.S. Sample	Japanese Sample
Firm's annual sales	less than \$50m	12.7	14.3
	\$50m-\$100m	22.2	16.1
	\$100m-\$500m	28.6	8.9
	\$500m-\$1b	7.9	33.9
	\$1 billion and more	28.6	26.8
Years of international operation	less than 1 year	0	7.5
	2-5 years	15.9	11.3
	6-10 years	15.9	26.4
	11-20 years	34.9	24.5
	21 years and more	33.3	30.2
Number of countries operated in	1	1.6	7.7
	2-5	24.2	34.6
	6-10	14.5	25.0
	11-20	29.0	19.2
	21-50	17.7	3.8
Product life cycle stage	51 and more	12.9	9.6
	introduction	14.3	7.3
	growth	57.1	56.4
	maturity	27.0	32.7
	decline	1.6	3.6
Type of product	consumer	23.8	19.2
	industrial	52.4	67.3
	consumer & industrial	23.8	13.5

Table 1.

Characteristics of the U.S. and Japanese Samples

Thus, it can be concluded that there is no strong evidence of nonresponse bias based on sales or number of employees.

To assess proposition P<sub>1</sub> that export performance can be decomposed into three underlying dimensions (i.e., financial performance, strategic performance, and satisfaction with the export venture), confirmatory factor analysis is applied to the EXPERF scale for the U.S. sample and the Japanese sample. For each sample, a three-factor measurement model is subject to a confirmatory factor analysis using the EQS program. The nine items of export performance are assigned to the three dimensions of the EXPERF scale based on their substantive content. Specifically, export sales, export growth, and export profit are assigned to the financial export performance dimension; the contribution of the export venture to firm's global competitiveness, global strategic position, and global market share are assigned to the strategic export performance dimension; and the remaining three items—

## ANALYSIS AND FINDINGS

### The Dimensions of the EXPERF Scale

satisfaction, perceived success, and meeting expectations—are assigned to the dimension of satisfaction with the export venture. If  $P_1$  is valid, confirmatory factor analysis should show that the factor structure is equivalent (that is, the same three-factor measurement model fits both the U.S. data and Japanese data), and the factor loadings should all be positive and statistically significant (Singh 1995). If, however, the model fails to fit the data, the proposition  $P_1$  would have to be rejected.

For the U.S. sample, the results of the confirmatory factor analysis are presented in Table 2. For the Japanese sample, the results are shown in Table 3. The models are fitted by the Generalized Least Square (GLS) method using the EQS program (Bentler 1989), as no apparent violation of the normality assumption is detected based on the univariate and multivariate statistics of the input variables. The Maximum Likelihood (ML) method was not used because it is more sensitive to data quality than the GLS (Bollen 1989), and its sensitivity could confound the cross-national effects on the measurement. The models are evaluated following the procedure recommended by Bagozzi and Yi (1988). In the initial stage, data quality was screened, and no apparent concern with data quality is detected.

In the second stage, an examination of EQS outputs showed no anomalies. This indicates that in both models there is no special problem in the minimization process and that all variance estimates of the independent variables and error terms are significantly greater than zero. In the third stage, global measures of model fit were examined. As shown in Table 2, for the U.S. sample, the Chi-square of the model is 32.27, which is not statistically significant (24 d.f.), suggesting that the model fit the data well. The Bentler-Bonett normed fit index (NFI) is .994, nonnormed fit index (NNFI) is .998, and the comparative fit index (CFI) is .999, reinforcing the finding that the three-factor measurement model fits the U.S. data very well. Similar results were obtained for the Japanese sample (see Table 3). The Chi-square of the model is 46.661, which is marginally significant with 24 d.f. The NFI is .992, NNFI is .994, and the CFI is .996. The results suggest that the three-factor model also fits the Japanese data well.

In the fourth stage, the internal structure of the models are checked, and no improper solutions are found. The normalized residuals are all small, and all significant coefficient estimates are in the hypothesized direction. Specifically, for the U.S. sample, all nine items loaded positively and significantly on their respective dimensions of the EXPERF scale. Thus, it can be concluded that the EXPERF scale has convergent validity for the U.S. data. The coefficient alphas for the financial, strategic, and satisfaction dimensions of the EXPERF scale are .833, .680, and .915, respectively, which com-

Dimensions of Export Performance	Items	Standardized Item-Loading	t-value
<b>FP:</b> Financial Export Performance (Alpha = .833)			
	This export venture:		
FP1:	has been very profitable.	.830	5.641*
FP2:	has generated a high volume of sales.	.922	6.149*
FP3:	has achieved rapid growth.	.604	2.225*
<b>SP:</b> Strategic Export performance (Alpha = .680)			
	This export venture:		
SP1:	has improved our global competitiveness.	.721	5.945*
SP2:	has strengthened our strategic position.	.990	10.316*
SP3:	has significantly increased our global market share.	.607	3.817*
<b>SE:</b> Satisfaction with Export Venture (Alpha = .915)			
SE1:	The performance of this export venture has been very satisfactory.	.924	8.651*
SE2:	This export venture has been very successful.	.947	8.632*
SE3:	This export venture has fully met our expectations.	.813	6.744*

\*Significant at .05 level.

Note: Chi-square = 32.266, d.f. = 24,  $p = .150$ , Bentler-Bonett normed index = .994, Bentler-Bonett nonnormed index = .998, comparative fit index = .999.

pare favorably to alphas reported in typical marketing studies (Peterson 1994). Similarly, for the Japanese sample, all item loadings are positive and significant, which suggests the presence of convergent validity. The coefficient alphas of the three EXPERF scale dimensions are .886, .839, and .916, respectively, which are also higher than the alphas reported in typical marketing studies (Peterson 1994). In addition, the correlation between the three EXPERF dimensions are .380, .551, and .367 for the U.S. sample, and .744, .671, and .802 for the Japanese sample. These correlations are all positive and significantly greater than zero but are significantly different from 1.00, suggesting that the EXPERF scale has discriminant validity for both the U.S. and Japanese data.

Finally, though the small sample sizes of the present study do not allow for meaningful cross-validation, the fact that all nine items loaded on their respective factors for both samples suggests that the results are consistent with the research

Table 2.  
Confirmatory Factor Analysis  
Results—United States

Table 3.  
Confirmatory Factor Analysis  
Results—Japan

Dimensions of Export Performance	Items	Standardized Item-Loading	t-value
<b>FP:</b> Financial Export Performance (Alpha = .839)			
This export venture:			
FP1:	has been very profitable.	.917	6.661*
FP2:	has generated a high volume of sales.	.863	6.803*
FP3:	has achieved rapid growth.	.721	5.338*
<b>SP:</b> Strategic Export performance (Alpha = .886)			
This export venture:			
SP1:	has improved our global competitiveness.	.625	3.682*
SP2:	has strengthened our strategic position.	.937	7.506*
SP3:	has significantly increased our global market share.	.851	5.413*
<b>SE:</b> Satisfaction with Export Venture (Alpha = .916)			
SE1:	The performance of this export venture has been very satisfactory.	.974	9.704*
SE2:	This export venture has been very successful.	.894	8.246*
SE3:	This export venture has fully met our expectations.	.877	8.134*

\*Significant at .05 level.

Note: Chi-square = 46.661, d.f. = 24,  $p = .0368$ , Bentler-Bonett normed index = .992, Bentler-Bonett nonnormed index = .994, Comparative fit index = .996.

proposition and with previous studies. Thus, the results are judged to be theoretically valid.

Combining all aspects of the model evaluation described previously, it can be concluded that, on both theoretical and statistical grounds, the three-factor measurement model of export performance fits the U.S. data and Japanese data, separately. In addition, the three-factor EXPERF scale has both the convergent validity and discriminant validity for the U.S. and Japanese data. Hence, the three dimensions of the EXPERF scale (i.e., financial export performance, strategic export performance, and satisfaction with the export venture) underlie the export performance of the U.S. and Japanese exporters, and proposition P<sub>1</sub> is supported by both samples.

The fact that the three-factor structure of the EXPERF scale fits both the U.S. and Japanese data well only suggests that the EXPERF scale has factorial similarity (Singh 1995). However, the cross-national consistency of the EXPERF scale needs to be further tested. To be cross-nationally consistent, all items loading on their respective dimensions must be equal between the United States and Japan, in addition to the requirement that the factor structures are identical between the two countries' models (Singh 1995). To test the cross-national consistency of the EXPERF scale, two-group confirmatory factor analyses are performed in EQS.

In the first two-group confirmatory factor analysis model, no cross-group constraint on the loadings of the items was imposed. That is, a two-group model with free loadings was fitted. The results indicate that the two-group model without constraint on loadings fits the data very well. The Chi-square of this model is 77.404 with 49 d.f., the significance level of which is .006. The Bentler-Bonett's NFI is .993, NNFI is .996, and the CFI is .997.

In the second two-group model, all item loadings of the U.S. model were constrained to be equal to the corresponding item loadings of the Japanese model. The results of this two-group confirmatory factor analysis indicate that the two-group model with constraints also fit the data very well. The Chi-square of the model is 86.674 with 58 d.f. The Bentler-Bonett's NFI is .992, NNFI is .997, and the CFI is .997. Because the second two-group model is hierarchically nested in the first two-group model, a Chi-square difference test can be conducted to see whether the two-group model without loading constraint fits the data better than the two-group model with loading constraints (Bollen 1989). The difference between the Chi-square statistics of the two nested models is 9.27, and the difference of the degrees of freedom between the two models is 9. Thus, the Chi-square difference statistic is not statistically significant at .05. Therefore, it is concluded that the two-group model with loading constraints fit the data equally as well as the two-group model without loading constraint.

The parameter estimates for the two-group model with loading constraints are shown in Table 4. Based on Bagozzi and Yi (1988), a multi-stage process is followed to further evaluate the fit of the two-group model with loading constraints. Similar to the individual U.S. and Japanese confirmatory factor analysis models evaluated before, for the two-group model with loading constraints, no violation of the normality assumption is detected; no anomalies exist in the outputs or the minimization process; the model fit indices are high; and all item loadings are positive and significant, even though they are constrained to be equal across the countries. There-

Table 4.  
Confirmatory Factor Analysis  
Two-Group Model with  
Loading Constraints

Dimensions of Export Performance	Item	United States		Inter-Group Constraints	Japan	
		Standardized Loading	t-value		Standardized Loading	t-value
<b>FP:</b> Financial Export Performance						
	FP1	.828	9.521*	=	.939	9.521*
	FP2	.916	9.879*	=	.861	9.879*
	FP3	.625	5.625*	=	.609	5.625*
<b>SP:</b> Strategic Export Performance						
	SP1	.644	6.253*	=	.650	6.253*
	SP2	.990	11.98*	=	.957	11.98*
	SP3	.664	6.462*	=	.788	6.462*
<b>SE:</b> Satisfaction with Export Venture						
	SE1	.928	13.11*	=	.971	13.11*
	SE2	.953	12.45*	=	.883	12.45*
	SE3	.831	10.73*	=	.869	10.73*

\*Significant at .05 level.

Notes: Chi-square = 86.674, d.f. = 58,  $p = .0087$ , Bentler-Bonett normed index = .992, Bentler-Bonett nonnormed index = .997, comparative fit index = .997.

fore, it is concluded that the two-group model with loading constraints fits the data well.

To further assess the cross-national consistency of the EXPERF scale, a third two-group model was fitted in which the error variances were constrained to be equal between the U.S. and Japanese models, in addition to the constraints of equal loadings. The Chi-square difference test was then used to see if the two-group model with both loading constraints and error variance constraints fits the data significantly worse than the two-group model with only the loading constraints. The results of the model estimates, which are shown in Table 5, indicate that the fit indices of the model are reasonably high (NFI = .979, NNFI = .984, CFI = .985), and the vast majority of the parameter estimates are significant and in expected directions. However, the two-group model with both loading constraints and error variance constraints has a large Chi-square statistic of 227.134, with 67 d.f., and has three estimates of error variances that fail to be statistically significant. Thus, the two-group model with both the loading constraints and the error variance constraints fits the data only marginally.

In comparing the two-group model with both loading constraints and error variance constraints to that with only the

Dimensions of Export Performance	Item	United States		Inter-Group Constraints	Japan	
		Standardized Loading	Error Var.		Standardized Loading	Error Var.
FP: Financial Export Performance						
	FP1	.999*	8.537	=	.907*	8.537
	FP2	.998*	15.94*	=	.875*	15.94*
	FP3	.996*	34.21*	=	.737*	34.21*
SP: Strategic Export Performance						
	SP1	.993*	27.97*	=	.637*	27.97*
	SP2	.999*	7.703	=	.945*	7.703
	SP3	.998*	12.75*	=	.863*	12.75*
SE: Satisfaction with Export Venture						
	SE1	.999*	3.526	=	.972*	3.526
	SE2	.999*	16.04*	=	.893*	16.04*
	SE3	.998*	18.17*	=	.873*	18.17*

\*Significant at .05 level.

Notes: Chi-square = 227.134, d.f. = 67,  $p < .001$ , Bentler-Bonett normed index = .979, Bentler-Bonett nonnormed index = .984, comparative fit index = .985.

loading constraints, it is found that the Chi-square difference statistic is 140.46, which, with 9 d.f., is very significant. This suggests that the two-group model with only the loading constraints fits the data significantly better than the two-group model with both loading constraints and error variance constraints.

These findings lead to the conclusion that the two-group model with only the loading constraints fits the U.S. and Japanese samples best and that the two-group model with both the loading constraints and the error variance constraints fit the data only marginally. Thus, proposition  $P_2$  is supported in the sense that the EXPERF scale possesses what Singh (1995) termed factorial similarity and factorial equivalence. However, the EXPERF scale appears to possess only marginal measurement equivalence in Singh's (1995) terms. Given the significant cultural differences between the United States and Japan (Hofstede 1980), this finding does not appear surprising. Indeed, should the factor structure, the item-factor loadings, and the error variances be all identical, there would be no need to distinguish exporters from the two countries because they would simply become the same group. Because this study is able to fully establish the factorial similarity and factorial equivalence and marginally establish the measurement equivalence of the EXPERF scale in

Table 5.

Confirmatory Factor Analysis  
Two-Group Model with  
Loading Constraints and Error  
Variance Constraints



two culturally diverse countries, it can be concluded that the EXPERF scale is cross-nationally consistent for the United States and Japan.

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## DISCUSSION

Despite the fact that much research has been done on the determinants of export performance, the current exporting literature is still plagued by conflicting findings. A review of the literature suggests that the lack of a unified conceptualization and uniform measurement of export performance are major factors contributing to this problem. In addition, the lack of a cross-nationally consistent export performance measure is also a cause of the problem, because many studies were done in a one-country context. Building on previous literature (e.g., Aaby and Slater 1989; Cavusgil and Zou 1994; Cooper and Kleinschmidt 1985; Diamantopoulos and Schlegelmilch 1994; Holzmuller and Kasper 1994), this study has developed the EXPERF scale, a broad conceptualization and measurement scale of export market performance, which has three major dimensions: financial export performance, strategic export performance, and satisfaction with the export venture. The study has also established the cross-national consistency of the EXPERF scale, in terms of having the same factor structure and the same item-factor loadings in the United States and Japan.

Based on a two-country export venture-level study, this study has found support for the three-dimensional conceptualization of export performance. Specifically, for both the U.S. and Japanese exporters, export performance can be assessed along three dimensions. Measures such as export profit, sales, and sales growth are indicators of a firm's financial export performance. When a firm exports, it is often driven by profit motives and growth opportunities. Making profits in the export market, achieving sales growth, and attaining a large volume of sales help the firm achieve its financial goals. In addition to financial goals, however, a firm often sets strategic goals for its export venture. The contributions of the export venture to the firm's global competitiveness, global strategic position, and global market share are indicative of the extent to which the firm achieves its strategic goals. Because achievement of strategic objectives will often put a firm in a favorable competitive position in the global market, long-term benefits can accrue to the firm in the form of financial rewards or an improved ability to ward off competitive attacks. Furthermore, the firm's satisfaction with the export venture is an important measure of export performance. With greater perceived success and greater satisfaction with an export venture, management is more likely to become supportive of and committed to the export venture. Satisfaction can also reinforce management's attitudes toward exporting and increase the firm's propensity to expand export operations.

The EXPERF scale developed in the current study has several significant implications for further exporting research. To make progress in the knowledge of the determinants of export performance, one must be able to compare research findings not only across studies but also across countries. The adoption of the EXPERF scale by future researchers across the world can lead to advancement of the knowledge of exporting in at least three ways. First, because the EXPERF scale integrates previous approaches to measuring export performance, it will facilitate comparison of findings of additional research using the EXPERF scale with those of previous studies. If a factor is found to influence export performance, its effect can be decomposed into three subeffects on each of the three EXPERF dimensions. Thus, the subeffects of a factor can be compared to those found in previous studies that used only one type of export performance measure. Second, the relative importance of different determinants of export performance can be ascertained more specifically. With the EXPERF scale, one will be able to determine the relative importance of determinants of export performance with respect to each dimension of the EXPERF scale, leading to more specific knowledge. For example, some factors (e.g., product adaptation, promotion adaptation) may have a positive impact on one dimension of export performance, but a neutral, or even negative, impact on others.

Third, the EXPERF scale facilitates comparison of studies conducted in different countries. Because the EXPERF scale showed cross-nationally consistency across the United States and Japan, one can confidently compare future studies conducted in these countries (and perhaps other countries) using the EXPERF scale, without having to be concerned about whether the same measure might mean different things in different countries. Thus, future studies conducted in different countries using the EXPERF scale can contribute to the advancement of knowledge.

The long-run application of the EXPERF scale is likely to result in research that has significant managerial implications. First, managers should not hold a narrow view of export performance. Although making sales and profits are important, management should broaden its view of export performance to include strategic goals of exporting and satisfaction with exporting. This will likely expand management's ability to influence its export venture's performance on various dimensions. Second, by allowing multiple studies to be compared, it will allow for a better understanding of what factors are correlated with exporting success. For example, if product adaptation is found to perform well across studies conducted in many countries, one can be confident that this is an important determinant of exporting success across the world. In addition, further use of the EXPERF scale has the potential to provide managers with a fuller understanding of how various

factors contribute to each of the three dimensions of exporting success. For example, it may be possible that an individual factor (e.g., spending on product development) has little effect on financial performance but a positive impact on strategic performance. Acquisition of such knowledge could help managers plan strategy based on their specific goals associated with exporting success.

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## LIMITATIONS OF THE STUDY

A few issues must be kept in mind when interpreting the results of this study. First, the results reflect the perceptions of top executives (chief executive officers or vice presidents of international operations) and are based on the response of a single individual in each firm, as opposed to pooled responses. Additional research examining the perceptions of mid-level executives and/or using pooled responses would be useful in order to expand the validity of the scale. Second, because of the sampling frame used in the study, the results reflect the export performance of medium and large firms, but not small firms. Additional research is needed to assess whether the EXPERF scale is applicable to small firms in the United States and Japan. Third, sample sizes are small for both the U.S. sample and the Japanese sample. The EXPERF scale needs to be further tested by large-scale studies. Fourth, due to the concern about respondents' abilities to provide accurate information, this study has focused on a recent export venture of firms. A potential drawback associated with this is that the export venture's lifespan is relatively short. Whenever feasible, further research should test the EXPERF scale for export ventures that have longer lifespans. Finally, the cross-national consistency of the EXPERF scale found in this study is limited by the fact that the scheme has only been validated in two countries. Additional research should focus on other countries, particularly other industrialized countries (e.g., Germany, United Kingdom, South Korea, Canada) and emerging markets (e.g., Argentina, Brazil, China, India, Mexico) to expand the applicability of the EXPERF scale.

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## CONCLUSIONS

In this study, a broad conceptualization of export performance and a three-dimension scheme for measuring export performance, known as the EXPERF scale, have been developed. The scale incorporates financial performance, strategic performance, and satisfaction with the export venture. Based on data collected from the U.S. and Japanese exporters, this study has established the cross-national consistency of the EXPERF scale, suggesting that the scale can be employed in both the United States and Japan.

If more studies adopt the three-dimensional EXPERF scale for measuring export performance and follow a standard format for grouping factors thought to be linked to export success (such as Cavusgil and Zou's 1994 conceptual framework), it can be expected that future research findings will be more readily comparable, particularly across countries. More

important, it is likely that the understanding of the determinants of export performance will advance significantly. Over the long term, a consistent string of findings may be beneficial to managers of exporting firms.

One important future research direction is to validate this three-dimension scheme in other countries. Such effort will increase confidence in the cross-national consistency of the EXPERF scale. The second future research direction is to develop consistent measurement schemes for the determinants of export performance. Although this study has developed a broad export performance measurement scheme here, additional research is needed to develop similar schemes for the determinants of export performance to make the future research findings truly comparable across studies and across countries. Finally, given the lack of consistent and cross-culturally relevant measures of performance of international joint ventures (Osland 1994), a third research direction is to investigate whether the measurement scheme developed here can be generalized to cases in which firms engage in joint venture operations.

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