Testing a Model of Export Marketing Performance: A Cross-National Study

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Abstract

Research into the determinants of export performance is fraught with problems arising partly out of disagreement about the conceptualisation and measurement of export performance. Some authors argue for a standardised measure, some for a combination of subjective and objective measures and others for measures based on what the firm is trying to achieve. Further, research on the determinants of export performance has produced a mass of findings which are difficult to integrate and synthesise leading to calls to carry out research in different environments to test the generalisability of the studies.

This paper is an attempt to test in Scotland, a model of the determinants of export performance developed in America by Cavusgil and Zou (1994). Using constrained factor analysis and structural equation modelling the model is tested using data from 154 export product/market ventures. The results indicate that there are problems replicating the model and that a different model might be developed for the Scottish data.

Key Words: Export, Strategy, Performance, Model

INTRODUCTION

Although the export performance of a nation is a key aspect of economic policy the research into the determinants of export performance has failed to produce clear guidelines for policy makers, managers and academics. The authors of a recent review of export performance commented that "the export performance literature is still plagued by several major problems" (Zou and Stan 1998 p.352). One of these problems, which is of critical importance to our understanding of export performance, is the conceptualisation and measurement of the export performance construct. Many studies have measured export performance with a single economic measure such as the export sales ratio or export profitability (Gemunden 1991), but the use of a single measure of performance captures only particular aspects of export activity. Besides the partial measurement of the construct, single item measures lack precision and are more prone to random error (Diamantopolous 1999). As a response to these concerns multiple economic measures have been used, however they do not capture data about the intentions and goals of management. In particular, economic measures say nothing about the nature of export marketing strategies in a firm or the attainment of strategic goals. Essentially, nothing is said about what a firm wants to achieve through the implementation of their export marketing strategies (Cavusgil and Zou 1994).

Besides the focus on economic and strategic objectives, studies have also interpreted export performance more broadly, for example, whether or not exporting takes place at all, the degree of internationalisation, and the response to barriers to exporting (Aaby and Slater 1989). One of the problems with a broadly-drawn conceptualisation is that the range of determinants of export performance is also very wide. This makes the development of some agreement on the determinants of export performance more difficult, if not impossible. Recognition of this situation, identified by Aaby and Slater, has led to a focus on a more narrowly-drawn view of export performance, with the use of multiple objectives to measure

export performance. Nevertheless the number of possible determinants is such that many studies have been selective in the determinants of export performance researched (Gemunden 1991). Attention has been focused on management and firm characteristics, yet the characteristics of the external environment influencing performance receive relatively little attention. In this respect it is notable that Aaby and Slater (1989) chose to ignore variables in the external environment as influences on export performance.

Another key issue is the impact of export marketing strategy on export performance. Cavusgil and Zou (1994) see export marketing strategy not as just one factor among many that influences performance, but as the result of factors that lead to the development of export marketing strategy within the firm. They conceptualise some determinants as having an indirect effect on export performance through export marketing strategy. This conceptualisation rests on measurement of performance at the product/market venture level rather than at the firm level. Hence, an export marketing strategy relates to a particular product in a particular market.

A further issue identified is the paucity of studies that test the results of research in other countries. One of the problems of reaching more agreement on the determinants of export performance is the differing environments in which studies have taken place (Diamantopoulos 1998). Much of the research carried out is American, as is illustrated by a recent study by Zou and Stan (1998), in which approximately half of the papers reviewed came from the United States. Very little research has been undertaken to test the validity of findings in different contexts, particularly in different countries (Diamantopoulos and Schlegelmilch 1994; Styles 1998). The purpose of this paper is to attempt to replicate a model of export performance developed in the United States, to see to what extent the elements of the model apply in a different country environment. The Scottish study like the American study was multi-industry and included small, medium and large firms. The study by Cavusgil and Zou (C&Z) was

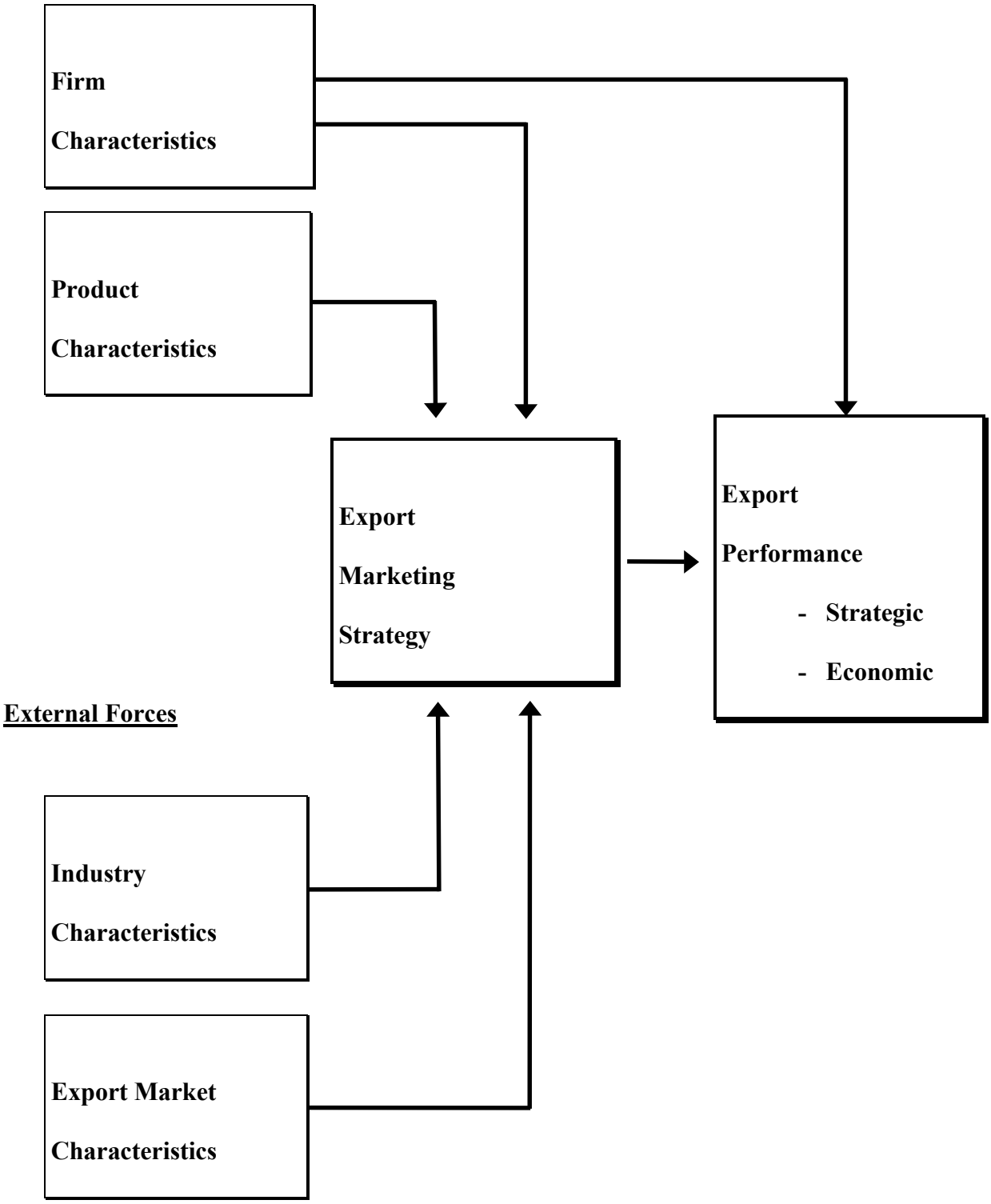
chosen because, with the preponderance of research carried out in the United States, much of the knowledge about export performance is based on American findings and so it seemed appropriate to test an American study in a European context. Also the C&Z study uses a comprehensive set of variables, including those relating to the external environment; the model posits direct and indirect effects on export performance and uses appropriate statistical techniques to handle this complexity.

THE RESEARCH DESIGN

Because of the lack of clarity in previous research Cavusgil and Zou put forward a simple framework of export marketing strategy and performance. The conceptual model shown in Figure 1 depicts internal forces, namely firm and product characteristics, and external forces, namely industry and export market characteristics, acting upon export marketing strategy, with firm characteristics also directly affecting export performance. In turn export marketing strategy influences export performance which is the attainment of both strategic and economic goals within the firm.

Arguing that there is no well defined conceptualisation of the topic nor any measures of the appropriate constructs, Cavusgil and Zou identified from the literature potentially significant variables. The variables are shown in Table 2, and represent export marketing strategy and firm, product, industry and market characteristics. Through personal interviews data was gathered about 202 product market/ventures in 79 manufacturing firms in 16 industries. Where data was collected about multiple product ventures in a company, different export managers were interviewed for each venture. The sample was split into two and exploratory factor analysis was carried out on one sub-sample. Factors and items were checked for consistency before deriving a testable model. The hold-out sub-sample was used for the confirmatory factor analysis and finally path analysis was used to test the model.

Figure 1: Internal Forces



Source: Cavusgil and Zou (1994) p.3

THE CURRENT STUDY

Using the items from the original study a questionnaire was designed for a mail survey combined with telephone follow-up to check the accuracy of the data. The questionnaire was developed from the items in the survey instrument tested in the original research. It was piloted with academics and experts in international business and changes were made affecting 3 out of a total of 44 items. With a similar sample design to the American study the sample frame was cross-industry and included small, medium and large firms. The sample was drawn from a database of Scottish exporters maintained by the Scottish Council Development and Industry. The questionnaire was mailed to a sample of 330 Scottish exporters in 1998 and a reminder was sent two weeks after the first mailing. Twenty-four questionnaires were returned either because the companies had ceased trading, changed address or did not export. These were eliminated from the sample frame. 151 firms responded giving a response rate of 49%. In 3 instances firms supplied data about 2 product market ventures, each completed by different executives for different markets. In total data was collected about 154 product/market ventures.

Table 1 compares the characteristics of the product/market ventures from the Scottish and American samples. It is notable that 93.5% of product/market ventures in the Scottish sample come from small and medium size firms compared with 51.5% in the American sample and that a greater percentage of the Scottish sample, have had international operations for 10 years or less, 36.3% compared with 24.5%. In both studies most of the sampled export ventures were at least 5 years old which permitted a long term measure of export performance. 64.1% of firms in the American sample operated in 25 markets or more compared with 29.2% in the Scottish sample. The average size of firms in the American study is approximately 1000 compared with 425 in the Scottish study. The breakdown of products is similar but the

number of markets where export ventures took place is much higher in the Scottish sample, 35 against 15. In both studies data was returned on successful and unsuccessful ventures with approximately 30% of the ventures rated as unsuccessful.

Table 1: A Profile of the Sampled Export Ventures

Dimension	Range	America % of Ventures	Scotland % of Ventures
Firm Size (number of full-time employees)			
	Less than 50	24.8	30.5
	50-499	26.7	63.0
	500-4,999	15.3	5.8
	5,000 or more	33.2	0.6
Years of Firm's International Operation			
	5 years	10.8	13.6
	6-10	13.7	22.7
	11-24	23.0	26.6
	25-39	22.5	14.3
	40 or more	29.9	22.7
Number of Markets in Which Firm Operates			
	1-5	18.8	29.2
	6-24	17.2	41.6
	25-39	24.5	14.3
	40-59	30.7	11.0
	60 or more	8.9	3.9
Type of Product			
	Consumer products	47.5	47.4
	Industrial products	42.6	42.8
	Other	9.8	9.7
Number of Industries From Which the Sample is Drawn		16	11
Number of Markets Where Export Ventures Took Place		15	35

TESTING THE CAVUSGIL AND ZOU MODEL

Testing the Cavusgil and Zou model took place in two stages (see Hair et al., 1998, for details): in the first stage we use constrained factor analysis and reliability analysis to check the measures to see if the items in the scales relate together in the same way - at a 'measurement model' level. The second stage involves checking whether the measures are relating to each other in the expected way: this involves structural equation modelling.

The expectation is that the empirical links in export market ventures are consistent across country environments, and that with a questionnaire designed to measure the same concepts with the same types of scales, the C&Z model of the marketing strategy-export performance relationship will be applicable in Scotland.

Plan of our Analysis

There are two reasons why we are not following the precise methods employed in the C&Z paper. The first is that the procedures used are not available to us and that we chose to use AMOS, a more widely used structural equation modelling package available with SPSS. So there follows an explanation of the decisions we made faced with the data analysis, in some respects comparing with what C&Z did and in other respects describing procedures not mentioned in that paper.

The second reason the methods in the C&Z paper are not appropriate is that in this paper we are attempting a replication. In a replication study (Byrne 1994) it is not appropriate to do the same exploratory factor analysis and scale construction process as C&Z did - especially the stage using hold-outs, as effectively a replication study is a repeat of a hold-out phase. A simple replication of C&Z's analysis steps is likely to fail to fit. This is because the empirical links between measures are not expected to be identical, as the original replications are seen as independent samples of the same multivariate normal distribution. Therefore we relaxed constraints in a logical pattern derived from Byrne (1994), but without any theoretical constraints.

Non-normality

C&Z do not describe using any corrections for non-normality but did use a correction for attenuation. This can deal with non-normality in categorical data, as it increases correlations between pairs of variables to compensate for unreliability. However the precise method used

was not available to the authors who also believe that combining correction for attenuation and factor analysis increases the risk of misinterpreting chance patterns of correlation. What was available was polychoric correlations for categorical variables (Dunn, Everitt and Pickles 1993), available in some structural equation modelling packages (EQS, but not AMOS). This can be seen as equivalent to a combination of correction for attenuation and for non-normality. However it requires an extremely large number of cases, many more than in this study. Not using a correction for attenuation means that our correlations are lower than C&Z's: however if the variables are acting in the same way this should make little difference to confirmatory factor analyses - except perhaps to reduce the levels of fit.

Some of the variables (employment and unit price) were measured in actual values rather than categorical scales. They were generally positively skewed and required corrections for non-normality. We used the SPSS Rank procedure's Blom option (SPSS 1998): this gives near normal distributions from a skewed continuous variable such as employment, while maintaining the rank order of the cases on that variable. This may increase some correlations but it is likely to reduce spuriously large correlations produced by outliers. This is more of a risk in the Scottish sample with fewer large firms.

Missing Data

There are possibilities of logical missing data in the series of related questions in C&Z's survey. For example, to be able to answer a question on the training provided to the sales force of a foreign distributor/subsidiary requires the respondent to have a foreign distributor/subsidiary. Nowhere in C&Z's paper do they describe what happens with logical missing data in their data analysis. We took an open approach to missing data, including cases with several items of missing data. In data analysis we used list-wise deletion, but when we came to overall analysis including lots of variables, it meant that our total number of cases was considerably reduced. So we re-coded the missing values as appropriate valid values. In the above example this would mean coding the answer to the training question as no training for respondents with no foreign distributor or subsidiary.

The effect of this approach to missing data was to keep the number of our cases at around 150 on all analyses. Such an approach may be the same as used by C&Z: but if they discarded incomplete cases and we included them it may be another reason for differences in the results. Such discarding of incomplete cases would bias the sample towards companies with more complete internationalisation for whom all items would be relevant.

The First Stage of the Replication

Scale reliability

The first stage of the replication analysis is to check whether the response patterns on our items achieve acceptable reliability coefficients with our sample. We can simply check the coefficients alpha, but it is appropriate for us also to do constrained factor analysis to check whether the pattern of exploratory factor analysis results found by C&Z fit our Scottish data. The results can be seen in Table 2. As in some cases the reliability coefficients were not acceptable we allowed the same approach as C&Z of item deletion; this usually means deleting the items with the lowest factor loading on our analysis (shown in Table 2)**.**

Export Marketing Strategy

The alphas are good for factors one and four, once the starred variable is dropped. Perhaps a European perspective means that for some sectors of production multi-language labels are the norm. The alpha for Promotion adaptation is only marginally acceptable, and those for Distribution Strategy and Price competitiveness are not at all acceptable. It makes one highly suspicious that these groups of factors work well alone.

Firm Characteristics

For this group the reliabilities are all acceptable or good. Clear factors that work well in both country samples have been used for Firm Characteristics.

Product Characteristics

These reliabilities show that for this sample these are not very good factors. The first two factors are marginally acceptable, but scale 3 is not. The alpha for Group 4 Industry Characteristics was .103. The correlation between the items was not in the expected direction!

Table 2: Initial Measurement Model

Export Marketing Strategy	**Coefficient Alpha (Scotland)**	**Coefficient Alpha after a variable was dropped***
1.1 Support to Foreign Distributor Overall support to foreign distributor/subsidiary Training provided to sales force of foreign distributor/subsidiary Promotion support to foreign distributor/ subsidiary	.870	
1.2 Promotion adaptation Degree of adaptation of product positioning Degree of adaptation of packaging Degree of adaptation of promotional approach Degree of market coverage	.529	.576
1.3 Distributor Strategy Number of export customers of the venture Sales goal of the export venture Type of export distribution channel*	.169	.347
1.4 Product Adaptation Degree of initial product adaptation Degree of product adaptation subsequent to entry Extent of product labelling in local language*	.402	.846
1.5 Pricing Strategy Degree of price competitiveness in export market Degree of target market specification	.157	
Firm Characteristics		
2.1 International Competence Number of full-time employees Annual sales volume of firm Amount of firm's international experience Years of IB involvement of firm Number of foreign markets operated Resources for export development	.792	
2.2 Commitment to venture Extent of careful entry planning Extent of management commitment Extent of resource commitment	.877	
2.3 International business intensity Firm's relative position in industry* Percent of sales from IB Percent of profit from IB	.668	.871

Table 2: Initial Measurement Model (continued)

Product Characteristics	**Coefficient Alpha (Scotland)**	**Coefficient Alpha after a variable was dropped***
3.1 Firms experience with product Age of Product Extent of establishment with firm	.610	
3.2 Product's technical complexity Training needs of sales force Service/maintenance requirement Strength of product patent*	.511	.529
3.3 Product Features Product's unit price Degree of product uniqueness	-.006	
3.4 Cultural specificity of product Degree of culture-specificity		
Industry Characteristics		
4 Industry Characteristics Degree of technology orientation of industry Intensity of price competition	.103	
Export Market Characteristics		
5.1 Export Market attractiveness Demand potential of export market Sophistication of marketing infrastructure	.295	
5.2 Cultural/legal similarity of markets Cultural similarity of markets Extent of legal/regulatory barriers	.306	
5.3 Export market competitiveness Competitive intensity Product exposure in export market	.289	
5.4 Brand familiarity of export customers Degree of brand familiarity in export market #	.352	

 # This was a single item in the C&Z study

Export Market Characteristics

Yet again the alphas for these factors are not satisfactory. C&Z only showed alphas for a purified measurement model with which they did their path model analysis. The alphas for these are presented after the constrained factor analysis.

Constrained Factor Analysis

To check whether C&Z's factors fit the Scottish data, AMOS was used for constrained factor analysis. As C&Z use thirteen factors and over forty variables there are insufficient cases to generate a stable analysis. However with the analyses done separately for each group it makes the comparison more focussed.

Formally the null hypothesis is that the same population (with population covariance structure) is the origin of both the C&Z and this study's sample. Independent samples from a population can have different results with precisely the same measuring instrument. However the differences should typically vary within margins, so that the chi-square tests of difference of fit are not significant.

In this research some adaptation of the measuring instrument was used. The low reliabilities for the majority of C&Z's scales suggest that the content domains have not been sampled properly. It is possible, although unlikely, that the same inter-concept covariance structure could apply to both samples, allowing for the fact that the concepts were not identically measured. The constrained factor analysis allows this to be checked.

C&Z did an exploratory factor analysis with all variables, extracting 17 factors. They grouped the factors into 5 groups. We are using these groups to simplify the confirmatory factor analysis process.

The strategy for fitting the factor model with AMOS was derived from Byrne (1994) as follows:

Step	Objective	Strategies
1	Starting Position	Take the variables loading on each factor from C&Z table: set other loadings to zero and require covariance between factors (an oblique solution)
2	Acceptable Solutions	This must be identified and there must be no inadmissible values.
3	Adding Loadings	This is done if modification indices are greater than 4.
4	Adding Error Covariance	This is done if modification indices are greater than 4.
5	Factor Quality	Either force independence between factors, or fix variance to unity, or delete the factor, if there are unacceptable solutions.

Export Marketing Strategy

Factor 1.5, Pricing Strategy, was a major cause of problems and was deleted from the model. Further, the variable, sales goal of the venture did not load significantly on Factor 1.3 Distributor Strategy and the variable, labelling in the local language did not load on Factor 1.4 Product Adaptation.

Other problems were to remove Factor 1.3 as well, to generate an almost acceptable fit (CFI = .983 and RMSEA = .031, chi-square 75.635 df 66). A large number of factor cross-loadings were introduced into the model shown in Table 3. This shows where relaxation in this aspect of the model had to occur to improve fit. This table (and the one for error covariances) shows statistically generated indications rather than being grounded in theory. Degree of Product labelling in local language was dropped from F1.4 Product Adaptation.

Table 3: Cross-loading Factors: Group 1 Constrained Factor Analysis

Factor with cross-loading	Variable Details	Original factor
F1.1 Support to Foreign distributor	Distribution channel type	F1.3
	Number of export customers	F1.3
F1.2 Promotion adaptation	Training provided to sales force of foreign distributor	F1.1
	Distribution channel type	F1.3
	Number of export customers	F1.3
	Sales goal of venture	F1.3
	Degree of target market specification	F1.5

Table 4: Pairs of Variables with Error Covariances

Variable 1	Variable 2	Correlations
Training provided to sales force of foreign subsidiary	Degree of adaptation of promotional approach	.189
Degree of adaptation of product positioning	Degree of adaptation of promotional approach	.204
Degree of adaptation of packaging	Degree of product labelling in local language	.241
Degree of market coverage	Distribution channel type	.217
Degree of market coverage	Number of export coverage	.296
Degree of market coverage	Degree of product adaptation subsequent to entry	.197
Distribution channel type	Degree of target market specification	.256

Before discussing Table 4 we should explain the nature of error covariances. The information in variables is divided between that explained by the model and that unexplained. If there is a correlation between the unexplained components of two variables it is represented by an error covariance. These can suggest bases for other factors. The error covariances in Table 4 suggest that an analysis of our data independent of C&Z's results might produce different results. So with a fair degree of flexibility there is evidence that the C&Z structure might just fit this Scottish small firm data for export marketing strategy. However there is

considerable drift from a tight fit and it's likely that an analysis independent of C&Z would reveal a different structure.

Firm Characteristics

Various cross-loadings have had to be allowed, but a fit of CFI .968 and RMSEA .065 was obtained and is approaching acceptability. Two item errors are correlated in this final model. The cross-loadings are Resources for Export Development and Amount of Firm's International Experience, which needed to be loaded on F2.2 Commitment to Venture and F2.3 International Business Intensity as well as F2.1 Firm's International Competence. Employment was loaded on F2.3 International Business Intensity as well as F2.1. In general this group (which had better alphas too) shows a better fit.

Product Characteristics

Problems with identification and inadmissible factor covariances were difficult to overcome in this analysis, see Table 5. The authors didn't manage to achieve a good fit even with all the types of permitted changes. The best was CFI = .933 and RMSEA = .064. There was an inadmissible factor covariance matrix and Factor 3.3 Product Features had less than zero variance: it was removed. The unique variance for the variable extent to which product is established within firm was less than zero, so it was fixed to be .01. We allowed the variable degree to which product is unique and the normalised product unit price to load on 3.2 Product's technical complexity. Four error covariances were also released, as below, all of which are intuitively interpretable.

Table 5: Product Characteristics Error Covariances

First variable	Second variable	Correlation
Training needs of sales force	Normalised unit price	.437
Service/Maintenance requirement	Normalised unit price	.414
Strength of product patent	Degree to which product is unique	.195
Degree to which product is unique	Degree to which product is culture specific	.322

Industry Characteristics

Group 4 only has one Factor (industry characteristics with 2 items). The correlation between the two variables was not significantly different from zero, which does not suggest the factor has been expressed in this study.

Export Market Characteristics

The same approach to analysis was used for the variables that comprise Export Market Characteristics. This generated a solution with a couple of cross-loadings and error covariances. This fitted with CFI = .969 and RMSEA = .039. The cross-loadings suggested:

- A relationship between sophisticated market structure and export market competitive intensity (F5.3), not with export market attractiveness (F5.1).
- A relationship between product exposure in export market and export market attractiveness.
- A loading of extent of legal/regulatory barriers with export market attractiveness.

The error covariance was between extent of legal/regulatory barriers and brand familiarity in export market. This represents a successful fit with only a few adjustments to the model.

So by following our procedures we have managed to find acceptable fit with export market characteristics, marginally acceptable figures with export marketing strategy and firm characteristics, and unacceptable figures for product characteristics. However a large number of adjustments were necessary - in fact none of the models showed any sign of fitting with precisely the same factor model.

So what might be the reasons for lack of fit? It is possible that the C&Z model doesn't apply. However it could be that content domains have not been properly sampled - this is indicated by poor reliabilities. However these might be due to our choosing not to use the correction for attenuation. It is possible that with indefinite resources applied to measurement construction we could generate reliable measures of the same concepts. However if we

continue with the purified model it is possible that something of the relationship between variables may still be apparent.

The Second Stage of the Replication

Purified model

C&Z reported reliabilities for a purified measurement model. This model only includes the factors with more than one item, as a measurement model is not appropriate for single item factors. They also used a structural equation model to check the measurement model for the predictor factors of export performance only.

Table 6 shows the reliabilities from the Scottish data for C&Z's purified measurement model. For export market performance it was very difficult to produce any reliable collection of items at all. Only when the sales growth figures for each year were disaggregated did we get an Alpha even approaching .5, and to drop the variable extent to which strategic goals are achieved would be rather difficult to contemplate from a theoretical perspective. This then does make the prospect of path analysis of an overall model a little unpromising, as the predictability of the composite is unlikely to be higher than the reliability estimate (Nunnally 1978). However the alphas for all the other purified models are acceptable. All but two factors had alphas greater than .7 and the others were around .6. So at this level this study shows reasonable agreement with C&Z's purified measurement model.

Table 6: Purified Measurement Model Reliability for the Scottish and American Samples

	Coefficient Alpha (Scotland)	Variable Dropped	Coefficient Alpha (Scotland)	Coefficient Alpha (America)
Export market performance Extent to which strategic goals are achieved Perceived success of the venture Average sales growth over the first five years Average profitability over the first five years	.467	Extent to which strategic goals are achieved	.677	.781
Product adaptation Degree of initial product adaptation Degree of product adaptation subsequent to entry Extent of product labelling in local language	.402	Degree of product labelling in local language	.846	.559
Promotion adaptation Degree of adaptation of product positioning Degree of adaptation of Packaging Degree of adaptation of promotional approach	.576	No improvement		.857
Support to foreign distributor/subsidiary Overall support to foreign distributor/ subsidiary Training provided to sales force of foreign distributor/subsidiary Promotion support to sales force of foreign distributor/subsidiary	.870	Only 2 variables		.853

Table 6: Purified Measurement Model Reliability for the Scottish and American Samples (continued)

	Coefficient Alpha (Scotland)	Variable Dropped	Coefficient Alpha (Scotland)	Coefficient Alpha (America)
International Competence Number of full-time employees Annual sales volume of firm Amount of firm's international experience Years of IB involvement of firm Number of foreign markets operated Resources for export development	.792	(no improvement)		.930
Commitment to venture Extent of careful entry planning Extent of management commitment Extent of resource commitment	.877	(no improvement)		.884
Firms experience with product Extent to which product is established with the firm The age of product since commercialisation	.610	Only 2 items		.592

SEM for the Purified Measurement Model

C&Z's purified measurement model was used to generate a constrained factor analysis and attempts were made to fit the model. This was done without including export marketing performance. However without any adjustments there was no approach to good fit. Making adjustments got the figures up to CFI = .964 and RMSEA = .0467, but quite a large number of adjustments were made.

First some of the inter-factor correlations were removed (all between experience and all factors except International Competence). Essentially this implies that experience is an independent factor.

As part of the fitting process, the variable resource moved from International Competence to commitment. International experience also loads on all other factors.

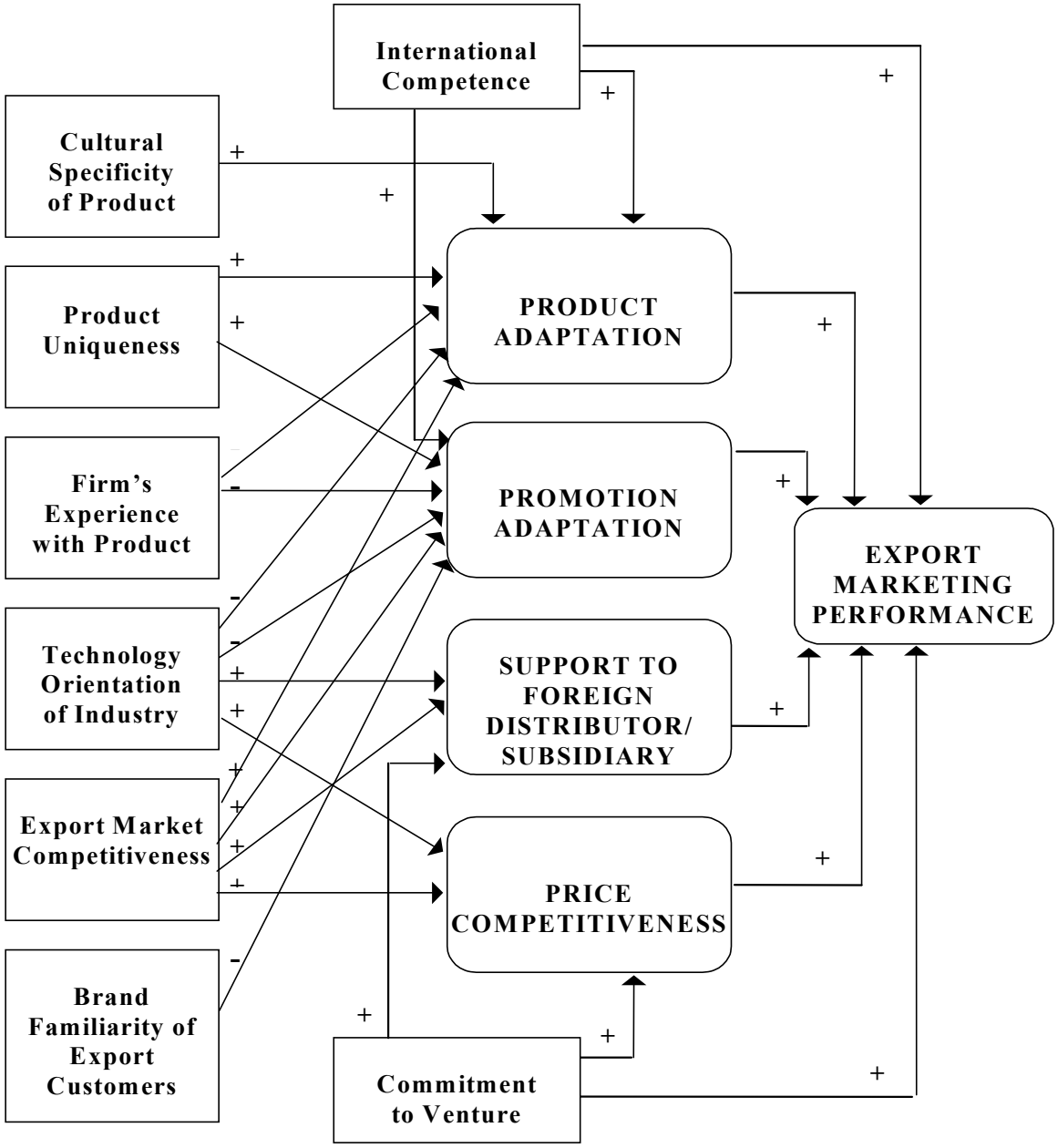
As part of the same fitting strategy used for the constrained factor analysis in stage one, some covariances between unique (error) components in the model were introduced and are shown in Table 7.

Table 7: Purified Model Error Covariances

First variable	Second variable	Correlation
Extent of Management Commitment to the Venture	Extent of planning for the entry of the venture	.251
Amount of resources available for Export development	Extent of planning for the entry of the venture	-.193
Amount of resources available for Export development	Extent of (non-managerial) resource commitment	.203
Years of firms regular international operations	Number of foreign markets in which firm operates	.238
Degree of product labelling in local language	Degree of adaptation of packaging	.245
Degree of adaptation of product positioning	Years of firms regular international operations	.145

Extent of planning for entry of the venture was positively related to extent of management commitment and negatively to amount of resources available for export development. This in turn was positively related to extent of non-managerial resource commitment. Years of firms regular international operations was related to number of foreign markets and degree of adaptation of product positioning. Degree of product labelling in local language was related to degree of adaptation of packaging. In essence although this represents a good fit coefficient there was a lot of adaptation. There are differences in the overall relationship between these variables but there is evidence of some overlap.

Figure 2: An Operational Model of Export Marketing Strategy and Performance



Source: Cavusgil and Zou (1994) p.12

To validate Figure 2, the operational model, summary variables were generated for each aspect of the model and the overall paths were estimated in another AMOS run. The fit for the model is extremely unsatisfactory (CFI = .380, RMSEA = .171) and in some cases the fit of the parameters is not in the same direction.

- Product uniqueness is negatively related to promotion adaptation.
- Technological orientation is slightly positively related to product adaptation.
- Technological orientation is related slightly negatively to price competitiveness.
- Export market competitiveness to product adaptation, promotion adaptation and support is negative.
- Brand familiarity of export customers is positively related to promotion adaptation.
- Support to foreign distributor, international competence and promotion adaptation are slightly negative to export marketing performance.

Obviously the reliability of these results is suspect as the goodness of fit is so poor. However, when checked with multiple regression these results are confirmed. For example the Adjusted R-square for predicting export marketing performance was .115. Only 2 variables had significant betas (commitment to venture and support to foreign distributor/subsidiary). The direction of betas was the same as in the AMOS model.

The replication of the path model did not involve revising any of the item-factor groupings to take into account the suggestions of improvements from the examination of the measurement models above. It is possible that, if the revised versions of the factors derived in the previous constrained factor analyses were used, a new path model with better fit may have ensued. However this would no longer have been a replication study.

DISCUSSION

The attempt to fit the C&Z model to the Scottish data is fraught with difficulties. There are some commonalities between the studies, with firm characteristics having much in common with the original study. This seems to confirm that aspects of firm characteristics like international competence, the commitment to the venture and the relative business intensity of the firm, seem to be common factors with other studies (Zou and Stan 1998). Overall, the fit was not good and the question remains, why?

One obvious difference is the size of firms. On the whole firms in the Scottish study were much smaller and arguably have fewer resources, possibly influencing the development of export marketing strategy (Storey 1992). Then there are the issues of international experience and size of home market. It seems plausible that an American market with a population of approximately 250m offers more growth opportunities than a Scottish market of 5m people within a UK market of 55m people. Possibly exporting firms in the American sample are on the whole bigger and better established partly because they are in a larger home market and have more growth opportunities at home than Scottish companies. This could be one explanation for the greater proportion of firms in Scotland that have been involved in international operations for 10 years or less. Also it would seem that the export market ventures in the American sample come from a smaller group of countries, possibly because in contrast to America there are more countries geographically proximate to Scotland.

Using personal interviews Cavusgil and Zou collected data about 202 product/market ventures from 79 firms. This study, using a mail survey, gathered data about 154 product/market ventures from 151 firms. It may be that the corporate culture of firms in the American sample has produced some similarity between cases collected within a firm which is not present in the Scottish study. In addition, the American study sampled 16 manufacturing

industries compared with 11 industries sampled in Scotland which may have introduced differences too.

The Scottish research took place approximately six years after the original study and may be one reason why the model is difficult to fit, although many of the variables might be expected to be fairly stable over time. However there are differences in the economic environment which would affect the characteristics of export markets. When the Scottish survey was undertaken the pound was very strong making competitive pricing in export markets problematic. In addition, the UK's competitive position could have been affected because it was not a member of the Exchange Rate Mechanism (ERM) and could not benefit from the stable exchange rates that exist between members of the ERM (Taggart and Taggart, 1997). This may help to explain the lack of results for the pricing factor.

It is also worth asking if contextual variables will always mean we will be looking for commonalties and not replication. It would seem reasonable that if we carried out our own analysis of the data we would develop a different model of determinants of export performance. But in this paper we are not doing this because we want to test the American model in a different context. The role adopted is confirmatory not exploratory. Previous work by Gemunden (1991) and Zou and Stan (1998) has explored the difficulty of making meaningful comparisons of the results of export performance studies from the mass of export research endeavours and this attempt to build upon the previous research highlights the problems involved. In this study, even when there is a similarity in the methodology used, the results are in most respects divergent. An attempt by Stottinger and Holzmuller (2001, forthcoming) to replicate their own research in Austria and the USA was also unsuccessful, underlining the problems of applying a model in two contexts.

There is also an issue with the purification process where a judgement is made about the items and factors that go forward to the final structural equation model. In what is ostensibly a

highly quantitative, objective methodology, individual judgement is a key factor. With so many conflicting findings in the literature it is perfectly possible to propose alternative interpretations based on empirical evidence and theoretical reasoning from the evidence. The key is the expert judgement of the researchers. We naturally rely on this but given the space limitations on articles, full commentaries on the purification process are not available to the reader.

CONCLUSIONS AND RECOMMENDATIONS

This study has set out to replicate a model of export performance developed from data drawn from the American market. Some commonalities are evident, with management competence, support for individual export market ventures, and relative business intensity being similar. The nature of export marketing strategy, product characteristics and export market characteristics have far less in common. There are many possible reasons for the differences, some of which relate to the research methodology employed and some which may relate to the nature of firms sampled. It seems quite likely that if a model of export marketing performance was developed for this sample of Scottish firms, it would be significantly different to that developed in the original study.

The implications for academics are several. There have been calls in the literature for more replication of studies from different contexts. The questions raised in this paper would lend some support for this view. The results of this replication may also support the position of Coviello and McAuley (1999) who argue that commonalities are to be found across studies in different environments rather than identical results. Previously, Gemunden (1991), Ford and Leonidou (1991), and Zou and Stan (1998), among others, have all asked for more attention to be paid to the research methodology used in studies and for the publication of comprehensive details about the statistical results. We would support this call so that the methodologies used can become more transparent. There is also reason to make more explicit

the role of culture in cross-national studies. In this study the data collection instrument was piloted with academics and international business experts but no other assessment of culture was used.

There are also decisions to be made about the future direction of export performance research. One school of thought argues for, effectively, various measures of export performance, depending upon what the purpose of measurement is. Buckley, Pass and Prescott (1988 and 1990) argue that the measure(s) used depends partly upon the export process in the firm. In other words, the measure should relate to what the firm is trying to achieve. Others, who wish to adopt a narrower view of performance, argue for a single, standardised but comprehensive measure of export performance (Zou, Taylor & Osland 1998). It seems that the implication for academics is to set out the conceptualisation and theoretical justification for the export measures used in their studies.

For managers, the implications seem to be that the influence of context on export performance is paramount. This study has identified the importance of firm characteristics, including management commitment to export success. This holds in America, and in Scotland, and there is a good deal of other evidence to support this view. So it would seem that the guidelines for export success should be interpreted in relation to a firm's internal and external environments. For policy makers, the importance of management characteristics is again underlined, both in the American context and the Scottish context. A firm's competence, commitment to product/market ventures, and their involvement with exports, all have a key influence on the firm. Export promotion measures which are aimed at increasing the competencies of individuals and firms are clearly of importance.

One of the problems with the export performance literature, identified by Zou and Stan (1998) is the need to build upon and develop existing research. One facet of this is to test studies by carrying out similar research in other countries. In this paper we have attempted to

replicate a model of the determinants of export performance and found that the replication only reproduces some of the components of the C&Z model. This might suggest that a reduced model could be replicated elsewhere, but the problem of measuring performance remains.

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