Internal and external drivers of green export business strategy: Their impact on competitive advantage and performance

Abstract

With the intensification of problems relating to the environment, exporting firms are increasingly confronted with ecologically conscious consumers and stricter environmental laws in many countries. The paper presents the results of a study conducted among 216 Greek exporters of manufactured goods, focusing on the internal and external drivers of an eco-friendly exporting business strategy, and its resulting effects on competitive advantage and performance. Our findings confirmed the instrumental role of environmental public concern, competitive intensity, organizational culture, and management profile on an eco-friendly export business strategy. The latter was found to have a positive effect on the firm's product differentiation competitive advantage, although there was no impact on cost leadership advantage. The product differentiation advantage was in turn revealed to be positively associated with both export market performance and export financial performance. However, such association with performance was not established in the case of cost leadership advantage.

Keywords

Exporting; Environmental management; Business strategy; Business performance

Introduction

The rapid pace of technological growth in recent decades has been responsible for causing serious ecological problems (e.g., climatic changes, land degradation, water pollution), which has given rise to environmental public concern in many parts of the world (Baker & Sinkula, 2005). This has been responsible for pushing many firms to become more sensitive on 'green' issues and adjust their business strategies accordingly (Drumwright, 1994; Kirkpatrick, 1990; Polonsky & Rosenberger, 2001). The importance of this topic has attracted a lot of attention from practitioners and academics alike, with hundreds of studies conducted on the subject in the last decades (Leonidou & Leonidou, 2011). Although the bulk of this research took place among domestic firms, virtually no study examines ecological business issues from an exporter's perspective. However, this is imperative nowadays, not only because of the increasing regulations protecting the environment in various countries, but also due to the rising role of ecologically sensitive market segments (both developed and developing).

The present paper comes to fill this void in the literature by conceptualizing and testing a model of the drivers (internal and external) of an eco-friendly business strategy, and its resulting effects on competitive advantage and performance. Specifically, our study seeks to provide answers to the following questions: (a) How can external and internal factors drive firms to adopt an eco-friendly export business strategy? (b) What role is played by the use of this eco-friendly strategy in gaining a product differentiation or cost leadership competitive advantage in export markets? (c) What are the effects of possessing these types of competitive advantage on both export market performance and export financial performance? The remainder of the paper is organised as follows: In the following section, we review the pertinent literature on environmentally-based business strategy and performance. The conceptual framework of the study is then explained and the research hypotheses are formulated. The next section deals with the investigation method, followed by an analysis of the results relating to the testing of hypotheses. Finally, conclusions and implications are derived, and suggestions for further research made.

Previous research

Although the idea of introducing environmental issues into designing and implementing sound strategies is not new (e.g., El-Ansary, 1974; Henion, 1972; Kassarjian, 1971), only recently has this idea shifted into mainstream management consciousness and attracted the attention of scholars in the field. Four major streams of research are connected with this strategic approach to ecological issues (Leonidou & Leonidou, 2011). The *first* stream investigates the role of various *external factors* that necessitate the adoption of eco-friendly strategies, with the imposition of environmental regulations attracting most of the attention, particularly focusing on corporate reaction/pro-action toward environmental legislation (Gray-Lee et al., 1994; Rugman & Verbeke, 1998). Another important issue covered in this category is green standards, with major themes centering on procedures in achieving environmental standards (Jiang & Bansal, 2003) and environmental certification effectiveness (Dowell et al., 2000). Another key external determinant is the environmental movement, with most of the attention given to consumerism, environmentalism, and environmental boycotting (Mirvis, 1994).

The *second* venue of research focuses on *internal determinants* of strategy, with the most commonly studied being: adjusting planning and control systems to take into account the risks relating to the adoption of environmental initiatives (Hunt & Auster, 1990), greening the organisational culture (Banerjee, 2002; Menguc & Ozanne, 2005), applying environmental thinking across all organisational layers (Bansal, 2003; Judge & Elenkov, 2005), and pioneering

environmental practices (Egri & Herman, 2000). A few articles (e.g., Fineman, 1996; Egri & Herman, 2000) also dealt with the profile of the green manager, particularly focusing on his/her moral positions, leadership styles, and personal values/attitudes.

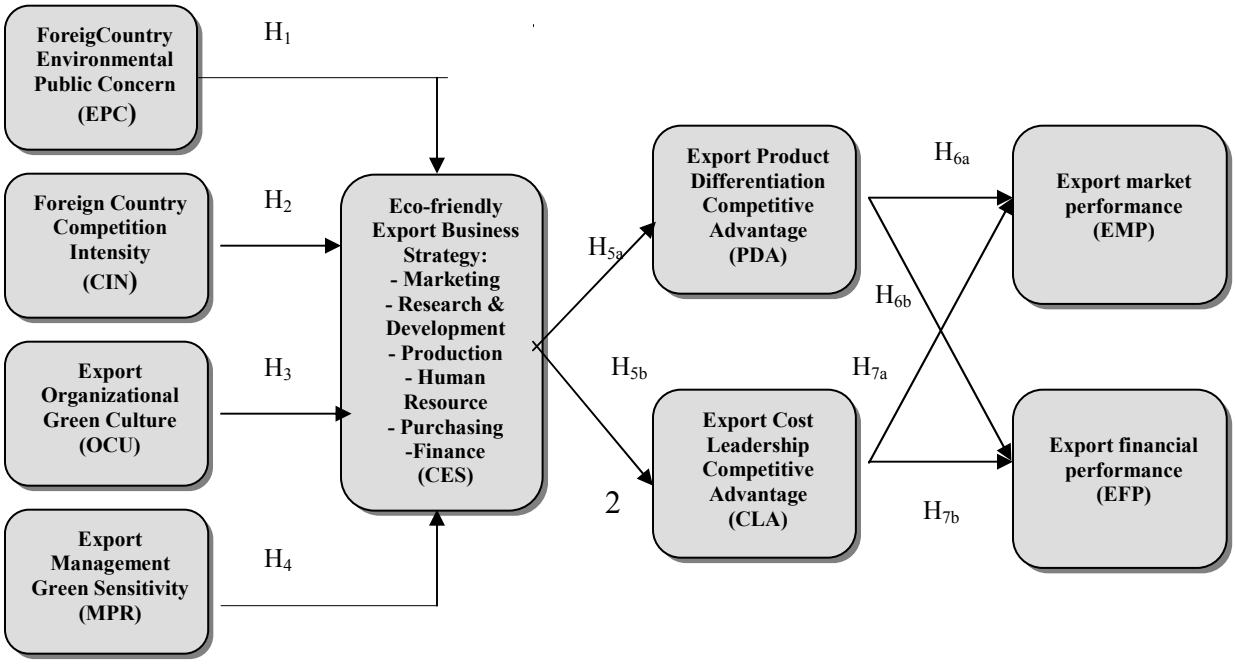
The *third* research stream concerns *environmental corporate strategy* per se. Of the elements of corporate strategy, production operations attracted most of the attention, covering such themes as environmental production technologies (Klassen & Whybark, 1999), green/lean production (King & Lenox, 2001), and pollution/waste reduction (King and Lenox, 2002). Marketing, as part of the overall corporate strategy, was also widely examined, mainly covering antecedents and consequences of environmentally-oriented marketing strategies (Menon & Menon, 1997; Baker & Sinkula, 2005). Financial aspects of strategy were examined less frequently, with the emphasis being primarily on the link between corporate social/environmental and financial performance (Orlitzky, 2001; Curcio & Wolf, 1996). Other strategic elements examined referred to supply chain management (Mendleson & Polonsky, 1995) and green alliances (Chen, 2001).

The *fourth* line of research covers *environmental strategy implications*, with the thrust placed on the performance outcomes of environmental strategies, particularly focusing on the association between environmental and financial performance, and the financial success derived from ecologically-friendly actions (Porter & Van der Linde, 1995; Klassen & McLaughlin, 1996). Another issue investigated less extensively was the environmentally-driven competitive advantage, which is built upon the effective and efficient deployment of environmentally-related resources and capabilities (Russo & Fouts, 1997; Aragon-Correa & Sharma, 2003). A final issue refers to environmental benchmarking/best practices, providing guidelines to successfully implementing corporate environmental policies (Grove et al., 1996; Hart, 1997).

Theoretical background, research model, and hypotheses

Figure 1 presents the conceptual framework of the study, which consists of four major parts: drivers (i.e., public concern, competitive intensity, organizational culture, management sensitivity), eco-friendly business strategy (i.e., marketing, research and development, production, human resources, purchasing, finance), competitive advantage (i.e., product differentiation, cost leadership), and outcome (i.e., market performance, financial performance). Altogether, ten hypothesized associations between the constructs of the model were identified, which are explained in the following.

Figure 1: The conceptual model



External drivers and eco-friendly business strategy: Public concern about the environment stimulates firms to become more ecologically conscious, since they wish to stress their socially responsible behavior to various stakeholders (e.g., investors), as well as to attract customers who are environmentally responsible (Banerjee et al., 2003). In fact, it was confirmed that in countries with a high level of public concern, such as Sweden, the cultivation of eco-friendly business strategies among firms is more widespread (Cagatay & Mihci, 2003). In brief, *the existence of public concern about environmental issues in the foreign market will have a positive effect on the firm's eco-friendly export business strategy* **(H_1)**. *Competitive intensity* refers to the degree to which a firm faces competition in a specific product-market (Jaworski & Kohli, 1993). In foreign markets characterized by intense competition, customers have many alternative options to satisfy their needs and wants and can easily switch suppliers. Firms are therefore being forced to find ways to develop strategies that satisfy the needs and wants of customers better than the competition, and environmentally-friendly strategies offer such an alternative. Hence, *the existence of competitive intensity in the foreign market will have a positive effect on the firm's export business strategy* **(H_2).**

Internal factors and environmental orientation: *Organizational culture (i.e.,* the set of values and norms shared by the members of the firm) can affect the nature and scope of its environmentally responsible behavior (Menon & Menon 1997). In fact, evidence shows that in organizations whose people are characterized by ecological consciousness, eco-friendly strategies, such as maintaining specialized personnel, adopting green production practices, and implementing green marketing programs, are more likely to be adopted (Baker & Sinkula, 2005). Thus, *the existence of an organizational culture which is sensitive to environmental issues will have a positive effect on the firm's eco-friendly export business strategy* **(H_3).** *Management sensitivity* to environmental issues is also a key factor in crafting an eco-friendly business strategy (Drumright, 1994). This is because managers are the embodiment of the objectives and ideas of the firm and, as such, have a crucial role to play in shaping environmental policies, strategies and procedures within the organization (Stone & Wakefield, 2000). Thus, we posit that: *the existence of export managers who are sensitive to environmental issues will have a positive effect on the firm's eco-friendly export business strategy* **(H_4)**.

Eco-based strategy, competitive advantage, and performance: One of the key reasons tempting managers to adopt an eco-friendly stance in their strategies is that they can achieve positional competitive advantage. This is because such strategy significantly lowers costs in the long run and/or helps differentiate products from the competition (Porter & van der Linde, 1995). This occurs because, on the one hand, firms use cheaper recyclable supplies and materials, energy-saving processes, waste-minimization solutions and process improvements, and, on the other, they are in a better position to attract, satisfy, and retain environmentally sensitive consumers (Banerjee et al., 2003). In other words, *the adoption of an eco-friendly export business strategy will create a competitive advantage for the firm, which may take the form of product differentiation* **(H_{5a})** *and/or cost leadership* **(H_{5b})**. Ultimately, by properly exploiting its eco-friendly competitive advantage, whether product differentiation or cost leadership, the firm is expected, on the one hand, to better perform in the market (e.g., satisfy eco-friendly consumers, strengthen customer loyalty, and attract new customers), and, on the other, to improve its financial performance (e.g., sales, profitability, cash flow) (Bharadwaj et al., 1993; Carmona-Moreno et al., 2004). Hence, *the firm's capitalisation on product differentiation competitive advantage will improve both its market performance* **(H_{6a})** *and financial performance* **(H_{6b})***, and the firm's exploitation of its cost leadership advantage will improve both its market performance* **(H_{7a})** *and financial performance* **(H_{7b})**.

Investigation method

The study was conducted among 216 export manufacturers, who were extracted from a sample of 500 firms registered in the most recent Directory of Greek Exporters (ICAP, 2010), that is, a response rate of 43%. All firms were contacted by telephone and asked to participate in the study and specify key informants who would be qualified to answer the questionnaire. A non-response test, which compared respondents and non-respondents revealed no statistically significant differences.

The research tool was a structured questionnaire, consisting of four major parts, each reflecting the four components of the conceptual model. There was also another section referring to the demographics of the respondent, as well as other background information. All questions were measured on a 7-point Likert scale, anchored from 1= strongly disagree to 7= strongly agree. To secure linguistic consistency of the questionnaire, it was written in English and then back-translated into Greek. The scales of the constructs employed and the literature sources from which these were derived are shown in **Appendix 1.**

Data were systematically collected from respondents based on a mail survey, while in some cases, personal interviews or drop-in questionnaires were also employed. Key informants were individuals who were directly responsible for the firm's export business strategy, these usually being the export officer, marketing manager, and in some cases the general manager. To test the conceptual model proposed, structural equation modeling was adopted (based on the EQS program), because it provides a useful framework for managing multiple relationships among constructs simultaneously (Hair *et al.*, 2006).

Findings and discussion

To assess the validity and reliability of the constructs and scales used in the conceptual model, two measurement models were estimated. The first (Model A) was used to assess the external factors (i.e., environmental public concern and competition intensity) and the internal factors (i.e., organisational culture and management profile). The second (Model B) included constructs such as eco-friendly export business strategy, competitive advantage, export market performance, and export financial performance. The results of both models provided a very good fit and the factors loaded highly on the specified constructs (see **Appendix 2)**. *Convergent validity* was satisfactory, since *t*-values for each item was greater than 4.0, standardised loadings were above .5, and all standard errors of the estimated coefficients were very low. *Discriminant validity* was also evident, since the confidence interval around the correlation estimate for each pair of constructs examined never included 1.0, and the chi-square difference between constrained and unconstrained models for every pair of inter-correlated constructs was always significant ($\Delta\chi^2_{(1)} > 3.84$; $p < .05$) (Anderson & Gerbing, 1988). All factors had *composite reliability* values and Cronbach's alpha estimates greater than .70, implying a reliable measurement of the theoretical construct as an element of the structural model (Bagozzi & Yi, 1988). The presence of a common method bias in the outcomes of the analysis was checked through a confirmatory factor analysis, in which all items included in the measurement (and the structural - see below) model were restricted to load on a single factor (Venkatraman, 1990)

The hypothesised links between the constructs were tested using the structural model, based on an elliptical re-weighted least squares (ERLS) estimation procedure. The analysis revealed a satisfactory structural equation model fit, as demonstrated by the ratio of Chi-square by the degrees of freedom (χ^2/df) = 1.92 and the results of the alternative fit indices (NFI = .92, NNFI = .96, CFI = .96, RMSEA = .082). The standardised path coefficients, together with the corresponding *t*-values of the structural model, are presented in **Appendix 3.** Notably, with the

exception of H_{5b} ,H_{7a} and H_{7b} , the hypotheses examined were found to be statistically significant and in the right direction.

The findings regarding the external drivers show that the level of public concern for the environment in the foreign market is conducive toward the cultivation of an eco-friendly export business strategy (β=.35, t=3.66, p=.00), and the same was also true with regard to the effect of competitive intensity on this strategy (β=.23, t=1.82, p=.09). The findings provide strong support for the argument that environmentally sensitive organizational culture (β=.79, t=7.23, p=.00) and managerial profile (β=.32, t=4.57, p=.00) provide the impetus for a firm to develop an eco-friendly export business strategy. Although adopting an environmentally friendly stance in export business strategy was found to enhance a competitive advantage which is based on product differentiation (β=.63, t=6.16, p=.00), this strategy did not have an effect on cost leadership competitive advantage (β=.09, t=.93, p=.35). This may be due to the significant costs incurred in making the firm's business strategy more environmentally friendly (Klassen & Whybark, 1999; Christmann, 2000). In line with prior research, our study confirmed that a differentiated product advantage has a favourable effect on both export market performance (β=.24, t=2.38, p=.01) and export financial performance (β=.37, t=3.50, p=.00). However, the path linking cost leadership competitive advantage with either export market performance (β=.06, t=.58, p=.56) or export financial performance (β=.10, t=1.03, p=.30) was not confirmed.

Conclusions, implications, and directions

Our study has stressed the role of both external and internal forces in sensitising exporting firms toward having a business strategy more friendly to the environment when operating in foreign markets. The adoption of such an eco-friendly strategy is very likely to enhance its competitive advantage in terms of product differentiation rather than cost leadership. By capitalising on an ecologically-based product differentiation advantage, the exporting firm will be in a position to improve both its market performance and financial performance. However, an attempt to pursue a cost leadership advantage will have no positive effect on either market or financial performance, probably due to the high investments and costs involved in adjusting the firm's business strategy to conform to environmental concerns.

These findings have various implications for both business managers and public policymakers. Export managers should appreciate the crucial role of eco-friendly business strategies in gaining a competitive advantage of product differentiation (because this will significantly improve their performance in foreign markets) and for this reason should carefully cultivate an appropriate organizational culture and managerial spirit. On the other hand, policymakers should try, through proper educational, regulatory, communication, and other programs, to cultivate the realisation among exporters that adopting an environmental approach to their business will be beneficial, especially in the long term, by enhancing their presence in foreign markets and improving their financial performance.

The importance of our findings at both micro-business and macro-economic levels necessitates the replication of the study in other countries, with different economic, socio-cultural, and political-legal settings. It would also be interesting to examine the moderating effect of cultural distance from and economic development of the targeted foreign market on the link between eco-friendly business strategy and competitive advantage. The effect of industry type and market orientation on the environmental behavior of exporters also warrants investigation. Finally, to identify the long-term effects of the implementation of eco-friendly business strategies, it is important to embark on longitudinal research.

References

Anderson, J.C. & Gerbing, D.W. (1988). Structural modelling in practice: a review and recommended two - step approach. *Psychological Bulletin*, 103, 411-23.

Aragon-Correa, J.A. & Sharma, S. (2003). A contingent resource-based view of proactive corporate environmental strategy. *Academy of Management Journal*, Vol. 28 (1), 71-88.

Bagozzi, R.P. & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, 16 (1), 74-94.

Baker, W.E. & Sinkula, J.M (2005). Environmental marketing strategy and firm performance: effect on new product performance and market share., *Journal of the Academy of Marketing Science*, Vol. 33 (4), 461-475.

Banerjee, S.B. (2002). Corporate environmentalism: the construct and its measurement. *Journal of Business Research*, Vol. 55 (3), 177-91.

Banerjee, S.B., Iyer, E.S., and Kashyap, R.K. (2003). Corporate environmentalism. Antecedents and influence of industry type. Journal of Marketing, Vol. 67 (2), 106-122.

Bansal, P. (2003). From issues to actions: the importance of individual concerns and organizational values in responding to natural environmental issues. *Organization Science*, Vol. 14 (5), 510-27.

Bharadwaj, S.G., Varadarajan, R.P. & Fahy. J. (1993). Sustainable competitive advantage in service industries: a conceptual model and research propositions. *Journal of Marketing*, 57 (4), 83-99.

Carmona-Moreno, E., Cespedes-Lorente, J., & de Burgos-Jimenez, J. (2004). Environmental strategies in Spanish hotels: contextual factors and performance. *The Services Industries Journal*, Vol. 23 (3), 101-30.

Chen, C. (2001). Design for the environment: a quality-based model for green product development. *Management Science*, Vol. 47 (2), 250-63.

Christmann, P. (2000). Effects of "best practices" of environmental management on cost advantage: The role of complementary assets. *Academy of Management Journal*, 43 (4), 663-680.

Curcio, R.J. & Wolf, F.M. (1996). Corporate environmental strategy: impact upon firm value. *Journal of Financial and Strategic Decisions*, Vol. 9 (2), 21-31.

Dowell, G., Hart, S. & Yeung, B. (2000). Do corporate global environmental standards create or destroy market value?. *Management Science*, 46 (8), 1059-74.

Drumwright, M.E. (1994). Socially responsible organizational buying: environmental concern as a noneconomic buying criterion. *Journal of Marketing*, Vol. 58 (3), 1-19.

Egri, C.P. & Herman, S. (2000). Leadership in the North American environmental sector: values, leadership styles, and contexts of environmental leaders and their organizations. *Academy of Management Journal*, Vol. 43 (4), 571-604.

El-Ansary, A.I. (1974). Societal marketing: a strategic view of the marketing mix in the 1970s. *Journal of the Academy of Marketing Science*, Vol. 2 (4), 553-66.

Fineman, S. (1997). Constructing the green manager. *British Journal of Management*, Vol. 38 (1), 31-38.

Gray-Lee, J.W., Scammon, D.L. & Mayer, R.N. (1994). Review of legal standards for environmental marketing claims. *Journal of Public Policy & Marketing*, Vol. 13 (1), 155-67.

Grove, S.J., Fisk, R.P., Pickett, G.M. & Kangun, N. (1996). Going green in the service sector: social responsibility issues, implications and implementation. *European Journal of Marketing*, Vol. 30 (5), 56-66.

Hair, J.F.Jr., Black, W.C., Babin, B.J., Anderson, R.E. & Tatham, R.L. (2006). *Multivariate data analysis* (6th ed.) Englwood Cliffs, NJ: Pearson, Prentice-Hall.

Hart, S.L. (1997). Beyond greening: strategies for a sustainable world. *Harvard Business Review*, Vol. 75 (1), 66-76.

Henion, K.E. (1972). The effect of ecologically relevant information on detergent sales. *Journal of Marketing Research*, Vol. 9 (1), 10-4.

Hunt, C.B. & Auster, E.R. (1990). Proactive environmental management: avoiding the toxic trap. *Sloan Management Review*, Vol. 31 (2), 7-18.

Jaworski, B.J. and A.K. Kohli (1993). Market orientation: Antecedents and consequences, *Journal of*

Marketing, 57 (3), 53-70.
Jiang, R.J. & Bansal, P. (2003). Seeing the need for ISO 14001. *Journal of Management Studies*, Vol. 40 (4), 1047-67.
Judge, W.Q. & Elenkov, D.S. (2005). Organizational capacity for change and environmental performance: an empirical assessment of Bulgarian firms. *Journal of Business Research*, Vol. 58 (7), 893-901.
Kassarjian, H.H. (1971). Incorporating ecology into marketing strategy: the case of air pollution. *Journal of Marketing*, Vol. 35 (3), 61-65.
King, A.A. & Lenox, M.J. (2001). Lean and green? an empirical examination of the relationship between lean production and environmental performance. *Production and Operations Management*, Vol. 10 (3), 244-56.
King, A.A. & Lenox, M.J. (2002). Exploring the locus of profitable pollution reduction. *Management Science*, Vol. 48 (2), 289-99.
Kirkpatrick, D. (1990). Environmentalism: the new crusade. *Fortune*, (February 12), 44-54.
Klassen, R.D. & McLaughlin, C.P. (1996). The impact of environmental management on firm performance. *Management Science*, Vol. 42 (8), 1199-214.
Klassen, R.D. & Whybark, D.C. (1999). The impact of environmental technologies on manufacturing performance. *Academy of Management Journal*, Vol. 42 (6), 599-615.
Leonidou, C.N. & Leonidou, L.C. (2010). Research into environmental marketing/management: a bibliographic analysis. *European Journal of Marketing*, Vol. 45 (1/2), 68-103.
Mendleson, N. & Polonsky, M.J. (1995). Using strategic alliances to develop credible green marketing. *Journal of Consumer Marketing*, Vol. 12 (2), 4-18.
Menguc, B. & Ozanne, L.K. (2005). Challenges of the 'green imperative': a natural resource-based approach to the environmental orientation – business performance relationship. *Journal of Business Research*, Vol. 58 (4), 430-38.
Menon, A., Menon, A., Chowdhury, J. & Jankovich, J. (1999). Evolving paradigm for environmental sensitivity in marketing programs: a synthesis of theory and practice. *Journal of Marketing Theory and Practice*, Vol. 7 (2), 1-15.
Mirvis, P.H. (1994). Environmentalism in progressive businesses. *Journal of Organizational Change Management*, Vol. 7 (4), 82-100.
Orlitzky, M. (2001). Does firm size confound the relationship between corporate social performance and firm financial performance?. *Journal of Business Ethics*, Vol. 33 (2), 167-80.
Polonsky, M.J. & Rosenberger III, P.J. (2001). Re-evaluating green marketing: a strategic approach. *Business Horizons*, Vol. 44 (5), 21-30.
Porter, M.E. & van der Linde, C. (1995). Green and competitive: ending the stalemate. *Harvard Business Review*, Vol. 73 (5), 120-33.
Rugman, A.M. & Verbeke, A. (1998). Corporate strategy and international environmental policy. *Journal of International Business Studies*, Vol. 29 (4), 819-34.
Russo, M.V. & Fouts, P.A. (1997). A resource-based perspective on corporate environmental performance and profitability. *Academy of Management Journal*, Vol. 40 (3), 534-59.
Stone, G.W. & K.L. Wakefield (2000). Eco-orientation: An extension of market orientation in an environmental context. *Journal of Marketing Theory and Practice*, Vol. 8 (3), 21-31.

Appendix 1: Operationalization of constructs

Constructs	Item	Item description
Foreign Country Environmental Public Concern	EPC1	The public in the foreign market expresses its concerns for damaging the environment
	EPC2	The customers in the foreign market increasingly demand eco-friendly products
	EPC3	The public in the foreign markets expresses more concern for issues other than environmental (R)
	EPC4	The customers in the foreign market expect our company to be environmentally sensitive
Foreign Country Competition Intensity	CIN1	The level of competition in our industry is fierce
	CIN2	There are many wars (e.g., price emphasis) between companies in our industry
	CIN3	In our industry, whatever can be offered by a competitor, can be immediately offset by another
	CIN4	The competition is a very important characteristic in our industry
	CIN5	In our industry, somebody can hear about a new movement among competitors almost every day
Export Organizational Green Culture	OCU1	In our firm, there is cooperation between departments to cultivate environmental consciousness
	OCU2	In all functional areas in our firm, we have incorporated environmental issues
	OCU3	Environmental issues are always taken into account when we discuss our export strategic plans
	OCU4	In our firm, the people dealing with exports are encouraged to express their ideas on green issues
	OCU5	In our firm, there is a favorable climate in which green issues can be freely discussed
Export Management Green Sensitivity	MPR1	Our managers keep us away from the risks involved in relation to ecological issues (R)
	MPR2	Our managers pay attention to ecological issues
	MPR3	In our company, export managers have clear instructions to implement environmental goals
	MPR4	Our company has managers who understand issues of ecological development in foreign markets
	MPR5	Our export managers make sure that our equipment is well-maintained and operated in an eco-friendly way
	MPR6	Our export managers put a lot of effort in understanding the green aspects of our activities
Marketing	CSM1	We design and develop products for the foreign market that are environmentally friendly
	CSM2	We encourage our foreign customers to engage in eco-friendly activities by offering price incentives
	CSM3	We collaborate with channels of distribution in the foreign market that are geared toward protecting the environment
	CSM4	Our company makes sure that the logistics used in selling goods to the foreign market are environmentally responsible
	CSM5	Our promotional efforts in the foreign market try to communicate our commitment to protect the environment
Research & Development	CSR1	Our company invests in the development of cleaner products and technologies for foreign markets
	CSR2	We take into account the protection of the environment when developing new technologies for foreign products
	CSR3	We have specialised staff who are engaged in the development of eco-friendly products for abroad
	CSR4	We systematically request the assistance of external consultants specialising in ecological issues for foreign goods
	CSR5	We develop collaborations with external organizations for the development of eco-friendly goods for foreign markets
Production	CSP1	We adopt environmental approaches that guide our production processes for goods sold abroad
	CSP2	We care about the reduction of environmental effects during our production process for goods sold abroad
	CSP3	We use environmental management systems in producing goods for the foreign market
	CSP4	We systematically reduce the use of non-ecological substances in our production process
Human Resources	CSH1	We educate our employees engaged in exporting on issues relating to the environment
	CSH2	We seek opportunities to compensate our employees who are adopting an ecological stance
	CSH3	We offer awards to our exporting staff which are related to environmental issues
	CSH4	Our company has special award systems that recognize the environmental performance of our exporting staff
	CSH5	We offer bonus or other forms of financial reward to exporting staff who have achieved their environmental goals
	CSH6	The responsibility of environmental issues is clearly assigned to one or more specialized people engaging in exports
Purchasing	CSG1	We give priority to the purchase of ecological raw materials for the production of our products for export
	CSG2	We apply environmental approaches in our purchasing decisions for goods relating to exports
	CSG3	We prefer to deal with suppliers who are environmentally friendly when selling goods for the foreign market
	CSG4	We always require from our suppliers specifications that conform to ecological characteristics of the exported goods
	CSG5	Our company collaborates with suppliers that can help to achieve its environmental objectives for foreign markets
Finance	CSF1	Our financial policy allocates money for environmental purposes relating to the firm's export activity
	CSF2	Our company follows established financial standards (e.g., global reporting) in its approach to export markets
	CSF3	We adopt formal environmental financial policies and processes for our export activities
	CSF4	Our financial strategy with regard to exports takes into consideration green saving costs
	CSF5	The financial strategy of our company with regard to exports takes into consideration environmental costs
Export Product Differentiation Competition Advantage	PDA1	We offer innovative, ecological goods in the foreign market
	PDA2	We offer environmentally friendly products of superior quality in the foreign market
	PDA3	We offer innovations in our ecological products in the foreign market
	PDA4	We offer ecological products with distinctive different characteristics in the foreign market
Export Cost Leadership Advantage	CLA1	We offer the lowest cost for exports in our industry
	CLA2	In the foreign markets that we operate, we offer the lowest prices
	CLA3	In our export operations we give emphasis to cost efficiency
	CLA4	In our foreign operations we seek to have high volume to achieve economies of scale
Export Market Performance	EMP1	Rate of acquiring foreign customers
	EMP2	Rate of maintaining foreign customers
	EMP3	Rate of sales increase by current foreign customers
	EMP4	Foreign customer satisfaction
	EMP5	Foreign customer loyalty
	EMP6	Reputation of company among foreign buyers
Export Financial Performance	EFP1	Export profits
	EFP2	Export sales
	EFP3	Market share in the foreign market
	EFP4	Export sales intensity
	EFP5	Return on export-related investment
	EFP6	Return on export-related capital

i) Note: Measurement scales were based on a 7-point Likert scale, ranging from 1: Strongly disagree to 7: Strongly agree.

Appendix 2: Measurement models - Summary of construct measurement

Constructs	Scale items	Standardised loadings	*t*-value	α	*ρ*	AVE	Mean score	Standard Deviation	Items means	Items s.d.
MODEL A										
Foreign Country Environmental Public Concern	EPC1	.78	*	0.88	0.81	0.72	4.69	1.35	4.74	1.47
	EPC2	.94	11.52						4.68	1.53
	EPC4	.83	10.79						4.66	1.50
Foreign Country Competition Intensity	CIN1	.83	*	0.87	0.82	0.58	5.39	1.13	5.43	1.40
	CIN2	.88	12.13						5.77	1.29
	CIN3	.71	9.33						5.27	1.42
	CIN4	.79	10.66						5.78	1.26
	CIN5	.56	6.93						4.74	1.56
Export Organizational Green Culture	OCU1	.83	*	0.93	0.88	0.73	4.55	1.39	4.51	1.58
	OCU2	.89	13.60						4.51	1.56
	OCU3	.88	13.54						4.40	1.57
	OCU4	.84	12.55						4.32	1.51
	OCU5	.84	12.51						4.99	1.61
Export Management Green Sensitivity	MPR2	.85	*	0.93	0.88	0.75	4.93	1.32	4.96	1.45
	MPR3	.89	5.98						4.71	1.49
	MPR4	.90	6.41						4.85	1.53
	MPR5	.78	6.37						5.12	1.44
	MPR6	.91	6.42						4.94	1.47
MODEL B										
Marketing**	CSM1	.76	*	.87	.82	.59	4.41	1.36	5.22	1.49
	CSM2	.68	7.62						4.02	1.75
	CSM3	.80	9.25						3.98	1.70
	CSM4	.82	9.45						4.23	1.61
	CSM5	.78	8.99						4.49	1.73
Research & Development	CSR1	.81	*	.84	.92	.68	4.48	1.40	4.75	1.57
	CSR2	.83	10.73						5.06	1.49
	CSR3	.82	10.65						4.17	1.71
	CSR4	.89	11.93						4.32	1.65
	CSR5	.79	10.03	.94					4.06	1.68
Production	CSP1	.85	*		.86	.62	4.59	1.40	4.83	1.49
	CSP2	.85	11.96						4.82	1.54
	CSP3	.73	9.31						3.70	1.97
	CSP4	.70	8.82						4.96	1.67
Human Resources	CSH1	.81	*			.76	3.96	1.51	3.97	1.79
	CSH2	.86	11.52	.93	.82				4.15	1.70
	CSH3	.90	12.48						4.01	1.66
	CSH4	.95	13.56						3.79	1.66
	CSH5	.91	12.58						3.49	1.63
	CSH6	.79	10.19		.90				4.17	1.70
Purchasing	CSG1	.80	*	.92		.68	4.92	1.41	4.84	1.65
	CSG2	.88	11.32						4.85	1.51
	CSG3	.83	10.43						5.07	1.59
	CSG4	.81	10.13						4.95	1.62
	CSG5	.81	10.02						4.82	1.63
Finance	CSF1	.82	*		.86	.70	3.82	1.51	3.92	1.67
	CSF2	.79	10.15						3.54	1.63
	CSF3	.83	11.04						3.77	1.74
	CSF4	.88	12.10						3.68	1.69
	CSF5	.86	11.67						4.07	1.77
					.87					

Export Product	PDA1	.93	*	.95	.89	.84	4.38	1.53	4.38	1.62
Differentiation	PDA2	.90	17.25						4.56	1.67
Competition	PDA3	.93	19.23						4.28	1.63
Advantage	PDA4	.90	17.37						4.27	1.64
Export Cost	CLA1	..85	*	.78	.72	.56	4.08	1.27	3.95	1.43
Leadership	CLA2	.85	6.43						3.94	1.50
Advantage	CLA3	.51	5.19						4.35	1.62
Export Market	EMP1	.51	*	.91	.86	.59	5.36	0.94	4.50	1.34
Performance	EMP2	.72	5.52						5.30	1.25
	EMP3	.62	5.10						4.85	1.23
	EMP4	.88	6.06						5.67	1.05
	EMP5	.89	6.09						5.60	1.18
Export Financial	EFP1	.52	*	.91	.86	.66	4.58	1.09	4.74	1.33
Performance	EFP2	.63	5.36						4.68	1.29
	EFP3	.96	6.61						4.49	1.23
	EFP4	.97	6.62						4.54	1.18
	EFP5	.89	6.39						4.46	1.29

* Item fixed to set the scale

** [a] Higher-order factor CES with α = .97, Mean score = 4.43, Standard Deviation = 1.23

Fit statistics of Model A:
Chi-square (χ^2) = 303.64, p = .000; *df* = 139; Ratio Chi-square to d.f. (χ^2/df) = 2.18;
Normed Fit Index (NFI) = .94; Non-Normed Fit Index (NNFI) = .95; Comparative Fit Index (CFI) = .96;
Root Mean Squared Error of Approximation (RMSEA) = .082; 90% Confidence Interval of RMSEA = (.070, .094)

Fit statistics of Model B:
Chi-square (χ^2) = 2245.22, p = .000; *df* = 1111; Ratio Chi-square to d.f. (χ^2/df) = 2.02;
Normed Fit Index (NFI) = .91; Non-Normed Fit Index (NNFI) = .95; Comparative Fit Index (CFI) = .95;
Root Mean Squared Error of Approximation (RMSEA) = .087; 90% Confidence Interval of RMSEA = (.082, .092)

Appendix 3: Results of the structural model

Hypo-thesis	Hypothesised association	Standardised path coefficient	*t*-value	*p*-value	Status
H_1	Foreign Country Environmental Public Concern → Eco-friendly Export Business Strategy	.35	3.66	**.00**	Accepted
H_2	Foreign Country Competitive Intensity → Eco-friendly Export Business Strategy	.16	1.82	**.07**	Accepted
H_3	Export Organizational Green Culture → Eco-friendly Export Business Strategy	.83	8.24	**.00**	Accepted
H_4	Export Management Green Sensitivity → Eco-friendly Export Business Strategy	.30	4.99	**.00**	Accepted
H_{5a}	Eco-friendly Export Business Strategy → Export Product Differentiation Competitive Advantage	.64	6.73	**.00**	Accepted
H_{5b}	Eco-friendly Export Business Strategy → Export Cost Leadership Competitive Advantage	.12	1.15	.25	Rejected
H_{6a}	Export Product Differentiation Competitive Advantage → Export Market Performance	.25	2.63	**.01**	Accepted
H_{6b}	Export Product Differentiation Competitive Advantage → Export Financial Performance	.33	3.37	**.00**	Accepted
H_{7a}	Export Cost Leadership Competitive Advantage → Export Market Performance	.05	0.53	.60	Rejected
H_{7b}	Export Cost Leadership Competitive Advantage → Export Financial Performance	.12	1.20	.23	Rejected

Fit statistics:
Chi-square (χ^2) = 3580.50, p = .000; *df* = 1867; Ratio Chi-square to d.f. (χ^2/df) = 1.92;
Normed Fit Index (NFI) = .92; Non-Normed Fit Index (NNFI) = .96; Comparative Fit Index (CFI) = .96;
Root Mean Squared Error of Approximation (RMSEA) = .082; 90% Confidence Interval of RMSEA = (.077, .087)