Environmental Activity and Forest Certification in Marketing of Forest Products – A Case Study in Europe

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Forest industries and their industrial customers from four European countries were surveyed by interviews to study the environmental emphasis and the role of timber certification in their marketing planning. Most of the Finnish, Swedish, German and British companies have begun to integrate environmental issues in their strategic, structural and functional level marketing decisions. They see forest certification as a necessary tool for marketing forest products. The level of environmental activity (greenness) of the companies was studied by creating a one dimensional factor score rating. The logic of marketing planning was tested by using one functional level marketing tool – forest certification – as an example to examine how well the level of greenness explains the importance of forest certification for the company. The results show that in the surveyed companies the level of greenness has more explanatory power than background factors such as country or industry sector. The integration of environmental issues into marketing planning and the interest in forest certification by these companies can provide meaningful insights for the forest industries worldwide as they confront similar issues.

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1 Introduction

1.1 Forest Certification and Environmental Marketing

During the 1990s, sustainable forest management (SFM) became a key issue in worldwide forestry. As a component of the SFM issue, forest/timber certification and its merits was a hotly debated topic among various forestry stakeholders. Generally it can be said that the forest industry initially questioned the need for certification. It can be argued, however, that due to societal forces forest certification has broken into the main stream and is becoming commonplace. Several certification systems have been developed or are currently under development. Because certification has yet to mature, the broad acceptance of any one particular system has not occurred. Two major certification systems (Forest Stewardship Council and the Pan European Forest Certification System) are currently competing for dominance in the European marketplace (Hansen and Juslin 1999, Hansen et al. 2000, Vilhunen et al. 2001) and discussions regarding mutual recognition among systems is taking place (Gunneburg 2000).

The dynamics of environmental issues such as forest certification have caused company marketers to consider the merits of a new concept in marketing, environmental marketing. The environmental marketing concept has seen considerable attention in academic circles during the last decade. Most authors see it as an extension of marketing to include the concept of minimizing damage to the environment while satisfying the wants and needs of consumers (Peattie 1995). For example, Banerjee (1999), Wehrmeyer (1999) and Miles and Covin (2000) have analysed the "greening" of strategic marketing with implications for marketing theory and practice. Hierarchical levels of strategic (green) marketing are analysed in these academic discussions. Also Pujari and Wright (1996) address the application of the strategy, structure and process framework for organisational and product-level response to environmental imperatives. Recent developments show that a green agenda following holistic principles has now been integrated into mainstream marketing literature (McDonagh and Prothero 1997). From a marketing practice point of view, environmental marketing requires internalization of the concept in the organization so that environmental marketing and environmental communication can only occur based on genuine environmental strategies undertaken by the company.

The role of certification in marketing strategy has been explored in the literature (Hansen 1997) and as certification has become more accepted, companies have had a keen interest in the potential of certification in the marketplace. A wide range of studies have been conducted in an attempt to measure the willingness-to-pay by consumers for certified products (Ozanne and Vlosky 1997, Vlosky and Ozanne 1997, 1998, Forsyth 1998, Ozanne and Smith 1998). Other work has looked at leading companies in certification and the benefits versus costs of certification that those companies have experienced. Generally those studies found that certification can positively impact companies, but that developing markets for certified products is not easy (Hansen 1997, Hansen et al. 1998, Hansen and Punches 1999). Still, systematically analyzed information concerning the potential of forest certification as a marketing tool appears to be missing. Although there is high interest in certification, industry marketers are often unsure how they should integrate forest certification into their marketing planning.

As companies move toward the use of forest certification in marketing, the forest management sector of the industry may experience the greatest impact. Possibly, marketing strategy decisions within companies can have a dramatic impact on the forestry operations at the beginning of a company s value chain. Accordingly, it is important for forest managers to understand how the concept of forest certification can become integrated into marketing planning of their company.

The forest industry in Europe, from forest owners to retailers, has been on the leading edge of certification since its early development. Major importing countries, Germany and the United Kingdom have had active groups of companies, led by retailers, demanding supply of certified forest products. As leading exporters to middle Europe, Finland and Sweden have aggressively

pursued forest certification, though through very different mechanisms. By analyzing how companies in these four countries are reacting to environmental issues and utilizing forest certification in marketing, insights can be gained into how forest industries worldwide might approach this issue.

1.2 Objectives of the Study

This paper is developed around two general objectives. From a practical perspective, the objective is to measure, describe, and compare how environmental issues and forest certification are used in marketing planning of European forest industries. Second, from a marketing theory perspective, the logic of environmental marketing is analyzed by studying hypothetical relationships between marketing strategies, structures and functions. This is done by testing Juslin s (Juslin 1992, Juslin and Hansen 2002) integrated model of marketing planning with respect to environmental issues by using one functional level marketing tool – forest certification – as an example to examine how well the level of environmental activity explains the importance of timber certification for the company. The general research questions to be answered are:

– Are environmental issues integrated into marketing planning within the European forest industries, and what is the role of forest certification in marketing?
– What differences exist among the countries (Finland, Sweden, Germany and the UK) and industry sectors regarding the emphasis on environmental issues in marketing planning?
– What are the relationships between environmental marketing strategies, structures and functions?
– What are the relationships between environmental activity and importance of forest certification as a marketing tool?

2 Environmental Marketing in Context: Theoretical Frame of Reference

2.1 Theoretical Framework

The core of the theoretical framework of the study (Fig. 1) is based on concepts used in previous studies where Juslin s (Juslin 1992, Juslin and Hansen 2002) integrated model of marketing planning was utilized and tested (Niemelä 1993, Martikainen 1994, Kärnä et al. 2001). Juslin s strategic marketing planning model identifies three hierarchical elements in marketing planning: strategies, structures, and functions (Fig. 1). Concepts by Ansoff (1965) and Shirley et al. (1981) have especially inspired the conceptual ideas and the hierarchy presented in the model. The model contains the usual components of marketing planning presented in marketing textbooks (e.g. Kotler 2000). However, the background ideology and hierarchical structure differ notably from the most common models, e.g. the frequently used "Four P s of marketing" where product, price, promotion and place (distribution) decisions are equally important and this marketing mix does not provide a comprehensive picture from a planning perspective (Juslin and Hansen 2002).

According to the theory underlying the model, genuine environmental marketing functions must be based on strategies emphasizing environmental issues (Juslin 1994). Product, customer and competitive advantage decisions are strategic level decisions highest in the hierarchy. Implementation of the strategies is not possible without structures taking environmental issues into account. For example, environmental management systems (EMS) are the procedures (structures) through which the daily work of the organisation is accomplished. Environmental marketing functions, such as communication and advertising, should not be independent but derive their objectives from marketing strategies. A similar kind of hierarchy in environmental marketing planning can also be found with Banerjee s (1999) framework of corporate environmentalism. However, in order to avoid mixed use of the term 'strategy , Juslin s model clearly defines 'marketing functions whereas Banerjee speaks
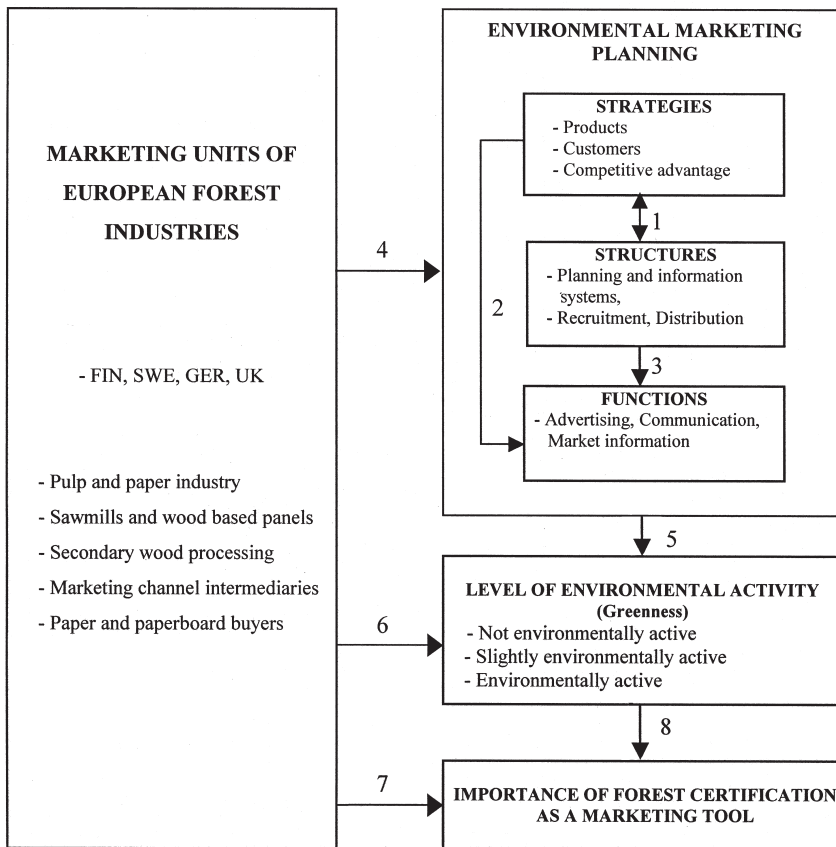
Fig. 1. Theoretical framework of the study.

of 'functional strategy . The integration of environmental issues into the strategies, structures, and functions of a company leads to, as defined in this study, level of "greenness" (Table 2, Fig. 2). The role of timber certification in this theoretical framework (Fig. 1) is as a potential communication tool (marketing function) (Table 6).

2.2 Defined Research Questions and Propositions to be Tested

Each block of the theoretical framework above is described based on empirical data. The numbered arrows describe the relationships to be studied seeking to explain the hypothetical dependencies between the concepts. Questions 1, 2 and 3 are based on the secondary material referred to in the

introduction describing the environmental debate within the European forest sector. Propositions 1 and 2 test the logic of the integrated model of marketing planning assuming a hierarchical relationship among marketing strategies, structures and functions as described above.

An increase in environmental concerns in society and among customers have had a significant impact on the activities of the forest industry over the past decade. We expected this impact to manifest itself in the integration of environmental issues into the marketing planning conducted by companies.

Q1, To what degree have European forest industries integrated environmental issues into marketing planning, and is it dependent on geographical area or industry sector (arrow 4)?

As previously mentioned, to effectively implement environmental marketing functions such as advertising, environmental issues must be genuinely integrated into company strategies and structures. Therefore, we expected a strong relationship to exist among environmental emphasis in marketing strategies, structures, and functions. This allows us to construct a measure instrument of overall environmental activity (greenness) in marketing planning (containing all hierarchical levels), and to use it for categorizing companies.

Q2 How can the overall level of companies' environmental activity be best described in a measure instrument for categorizing companies (arrow 5)?

Because of the attention given to environmental issues and the high profile demand for certified products from a minor sector of the European industry, we examined companies attitudes and needs toward forest certification, to clarify its role in marketing planning. We expected that companies would see certification as an important tool for marketing environmentally based forest products.

Q3. What is the role and importance of forest certification as a potential tool for marketing forest products, and is it dependent on geographical area or industry sector (arrow 7)?

Proposition 1 tests how logically environmental issues are integrated in marketing planning. The hierarchical theory underlying the framework of this study suggests that the objectives of environmental marketing structures and functions are derived from marketing strategies, and the implementation of the strategies is not possible without structures taking environmental issues into account. For testing P1, we examine marketing strategies as predictors of marketing structures (arrow 1), and strategies & structures as predictors of marketing functions (arrows 2 and 3).

P1. Environmental emphasis in marketing structures and functions (e.g. planning systems, advertising, communication) reflects environmentally oriented decisions in marketing strategies.

Proposition 2 tests the logic of using forest certification as marketing tool. Those companies that have aggressively incorporated environmental marketing concepts into their marketing strategies, structures, and functions are better prepared to capitalize on the opportunities presented by forest certification. Irrespective of industry sector or country (arrow 7), we expected companies that are more environmentally active to consider forest certification a more valuable marketing tool (arrow 8).

P2. The more environmentally active the companies, the more important a marketing tool they regard timber certification.

3 Materials and Methods

3.1 Operationalization and Measurement

Following the logic of the study framework, marketing strategies, structures, functions, and timber certification as a marketing tool (dependent variables) were operationalized. Measurement was based primarily on five point Likert-type scales with end points such as 'not at all important , 'very important , 'completely disagree , and 'completely agree. Frequency of some marketing procedures was measured using a four-point scale (Never-Occasionally-Often-Always). Dependent variables are presented within the results of a series of factor analyses (Tables 2 and 6).

The concept of *marketing strategy* can be broken down into four major components (Juslin 1992, Juslin and Hansen 2002). These are the product, customer, market area, and competitive advantage substrategies. The product characteristics and orientation, for example, commodity product – special product – custom product, are defined in strategic product decisions. In environmental product decisions (Item 1 in Table 2), environmental friendliness is regarded as a product characteristic that is examined throughout the life of the product. Environmental friendliness may be one characteristic that can convert a commodity product to a special product. Strategic customer decisions involve choosing customers the company will target, for example, as many end-users as possible, few, well-defined end-users, or known end-users. In environmentally oriented customer decisions (Item 3 in Table 2) a company aims to satisfy the needs of environmentally conscious customers, and therefore actively tries to focus on such market segments. If a company does

not have any environmental strengths, it has no other choice but to try to avoid environmentally sensitive customers and focus on other segments instead. Competitive advantage strategies typically define the relative marketing advantages pursued by a company. Environmental friendliness as a competitive advantage (Item 2 in Table 2) is often dependent on the natural circumstances of a company but it also requires goal-oriented work to develop environmental marketing when planning the competitive emphasis for your more important products and markets.

Marketing structures form the framework for the planning and implementation of environmental marketing. Considering and documenting environmental issues in all decision making could mean use of an environmental management system and may require changes in organisation philosophy, in planning and information systems, in personnel recruitment and training, and in designing distribution channels (Items 4, 5, 6 and 7 in Table 2).

According to the logic of the study framework, communicative *marketing functions* such as collecting market information, advertising, and personal selling should be the logical consequences of strategic decisions putting them into practice (Item 10 in Table 2). Environmental arguments in advertising (Item 8 in Table 2) are perhaps the most visible aspect of environmental marketing. However, they should not be the main part but rather a logical and credible function of strategic and structural decisions. Environmental marketing will also set new challenges for personal communication and contacts (Item 9 in Table 2) by salespeople. A systematic collection of relevant market information (Item 11 and 12 in Table 2) regarding environmental concerns in the markets provides background information to support proactive strategic and structural decisions. Product planning and pricing should reflect strategic decisions. For instance, a pioneer company offering environmentally oriented special or custom products can differentiate its pricing more easily than a company offering commodity products.

3.2 Data Collection

The cross-sectional data for the study was collected mainly through personal interviews with a structured quantitative questionnaire. Personal interviews were used when possible to assure a high total and item response. Quota sampling was utilized with the objective of representative data for the strategic business units (SBU) of the forest industry value chain including companies in Finland, Sweden, Germany and the UK. Data was collected in Finland, Germany and in the UK during the winter of 1997 in the context of an European Commission research project on "potential markets for certified forest products in Europe" and the equivalent data from Sweden was collected during the fall 1998 in the context of a University of Helsinki M.Sc. thesis. In Finland and Sweden the sampling emphasis was on the beginning of the forestry-wood chain and in Germany and the UK it was toward the end of the forestry-wood chain. Thus, we describe the sample as covering the forestry-wood value chain which includes primary wood processors, secondary wood/paper processors, publishers, and marketing channel intermediaries including do-it-yourself (DIY) retailers. The broad sampling scheme and general operationalisations used in the study are strong indicators of the generalizability of the results outlined below.

The person with the highest responsibility in marketing planning within each unit was targeted. Table 1 shows the number of interviews and the estimated coverage of production in each country. The German coverage is estimated to be good within the paper and paperboard buyers, but other sectors are difficult to evaluate (Pajari et al. 1999). For a more detailed description of questionnaire development and data collection procedures, see Pajari et al. (1999) and Steineck (1999).

3.3 Analysis

Interpretation of the data called for a variety of analysis techniques. At the most basic level, means and distributions were used to interpret the magnitude of attitudes. For clearer interpretation of results, factor analysis (maximum likelihood) was used to examine the dimensions inherent

Table 1. Number of interviews and estimated coverage.

Industry sector	Number of interviews (total 454)			
	FIN	SWE	GER	UK
Pulp, paper and paperboard	34	22	13	9
Sawmills and wood based panels	46	44	3	20
Secondary wood processing	20	14	57	42
Marketing channel intermediaries	11	12	24	21
Paper and paperboard buyers	4	3	48	8
Total	114	95	145	100

Industry sector	Estimated coverage		
	FIN	SWE	UK
Pulp, paper and paperboard	77% of the production	35% of the production	70% of the production
Sawmills and wood based panels	70% of the sawn wood production, panels 100%	65% of the sawn wood production, panels 40%	60% of the sawn wood production, panels 100%
Secondary wood processing	20–80% depending on the defined branch	12% of production	20–80% depending on the defined branch
Marketing channel intermediaries	70% of the volume traded	17% of volume traded	80% of the volume traded, DIY 100%
Paper and paperboard buyers	40% of the industrial paper purchases	10% of the industrial paper purchases	50% of the industrial paper purchases

in the data and as a data reduction tool. In each case, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, Bartlett s Test for Sphericity, and Eigenvalues, as well as the judgement of the researchers were included in the decisions surrounding the number of factors that most meaningfully represented the larger number of variables. The reliability of the factor solutions was tested using the reliability coefficient Alpha. (Lewis-Beck 1994).

Indicative significance testing was used, although the sampling was not pure random sampling, but closer to the total population. Statistically significant differences between independent variables (countries, industry sectors) were identified through the use of the χ^2-test within individual variables or by comparing the means of factor score coefficients using one-way ANOVA (Bonferroni, sig. level .05). Only those differences found to be statistically significant are reported along with their associated p-values. Finally, multiple regression analyses were used in a path model to analyze relationships between marketing strategies, structures and functions. (Malhotra 1993, Lewis-Beck 1994).

4 Results of the Study

4.1 Decisions Concerning Marketing Strategies, Structures and Functions

Generally, respondents emphasized environmental friendliness in their strategic product decisions. Only 18% of respondents claimed little or no emphasis on environmental friendliness (rating of 1 or 2). Respondents did not feel that environmental awareness was a particularly important characteristic for selecting customers. However, 35% of respondents considered it an important criterion while 39% did not. Environmental awareness was clearly a more important aspect in customer decisions for German companies than for companies from other countries (p<.001). Regarding industry sectors, this was most important for paper buyers and secondary wood processing and least important for the sawmill and panel industry (p < .007). Environmental friendliness was considered rather important when planning the competitive emphasis for the most important products and markets. About 40% of respondents regarded as rather important while 23% gave it little or no importance. It should be

noted that other aspects of competitive advantage, e.g. price or quality, were considered to be much more important factors in customers buying decisions (Pajari et al. 1999).

Regarding *marketing structures*, values and philosophy of management are the aspects that are most impacted by environmental issues. About half the respondents considered the impact to be strong. Only 22% of respondents thought that the impact has been minor. Respondents saw a lower impact by environmental issues on planning and information systems. Only 26% rated the impact to be strong. The impact on personnel recruitment and training was seen even lower and only about 20% of respondents rated the impact as strong. The impact of environmental issues was considered to have been lowest on distribution channels. The impact on distribution channels was higher (p<.004) within German and Swedish companies compared to the British companies.

Regarding *marketing functions*, about 40% of respondents estimated that the impact of environmental issues has been strong both on advertising/communication and on personal contacts/selling. Many respondents said that environmental issues have often come out in informal discussions between supplier and customer rather than in formal business documentation. Regarding company procedures (4 point scales), only a few respondents indicated that they never consider environmental concerns in strategic planning. Over half reported that it is done always or often. About half the companies examine environmental information actively in their business decision making. Inviting input from environmental groups when making environmental business decisions was not common. However, Swedish companies are more active in this than companies from other countries (p<.001).

The impact of environmental issues has been strongest on strategic product decisions, values and philosophy of management, planning the competitive emphasis, and in personal contacts. The impact has been lowest on inviting input from environmental groups. Regarding research question 1, this shows that the majority of responding companies have begun to integrate environmental issues into their marketing. This was found to be true at each of the hierarchical levels: strategies, structures and functions.

4.2 Level of Overall Environmental Activity

All the variables used to measure marketing strategies, structures, and functions described above were included in the factor analysis in order to create a dimension of environmental activity (greenness) in marketing planning. A total of 32 of the 454 cases contained missing values. These missing values were replaced by the mean of that variable in order to allow inclusion of all 454 cases in the analysis. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (.89) and Bartlett s test for Sphericity (p < .000) both indicated that the variable set was appropriate for factor analysis. One and two factor solutions were considered but upon further consideration of the face validity of the items, a one factor solution was chosen in order to construct a uni-dimensional measure of environmental marketing planning. The one factor solution explaining 37.7% of the total variance (after extraction) with factor loadings, communalities, coefficient Alpha, means and the standard deviations of individual variables are described in Table 2.

The results of the factor analysis and uni-variate description also show that the items in the one factor solution are indicators of the integration of environmental issues into a company s marketing planning. Thus, with respect to research question 2, an overall measure of the companies level of environmental activity (hereafter referred to as greenness), can be created based on distribution of factor scores. The histogram distribution of the companies based on level of greenness is presented in Fig. 2.

As can be seen in Fig. 2, this classification of companies provides a normal shaped distribution. In order to conduct further analysis, three categories of companies were created using appropriate class limits in order to compare the relative differences of the groups (Table 3). Providing further clarification for research questions 1 and 2, the categories were named "not environmentally active", "slightly environmentally active", and "environmentally active".

In this classification, most companies (60%) belong to the "slightly environmentally active" category. The two "extremity groups" represent both 20% of respondents each. Divergence of environmental activity among the four countries

Table 2. Measure instrument for the level of environmental activity.

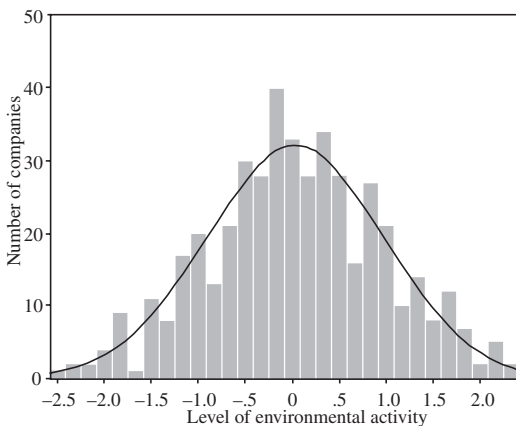| Variable (Scale 1–5) n = 454 1–3 Strategy items, 4–7 Structure items, 8–12 Function items	Mean (sd)	Factor I	h^2
1　In your strategic product decisions, how much is the environmental 　　friendliness of the product emphasized?	3.38 (.99)	.636	.404
2　How important is environmental friendliness when planning the competitive 　　emphasis for your most important products and markets?	3.18 (.99)	.618	.382
3　When selecting your most important customer group(s) how important is 　　their level of environmental awareness in your decision making?	2.91 (1.27)	.436	.190
4　How strong an impact have environmental issues had in the values and 　　philosophy of management in your company?	3.32 (1.07)	.674	.454
5　How strong an impact have environmental issues had in the planning and 　　information systems (type of information used etc.)?	2.82 (1.07)	.688	.474
6　How strong an impact have environmental issues had in the personnel 　　recruitment and training?	2.61 (1.08)	.636	.405
7　How strong an impact have environmental issues had in distribution 　　channels?	2.55 (1.06)	525	276
8　What impact have environmental issues had on advertising and 　　communication campaigns?	2.96 (1.28)	.673	.453
9　What impact have environmental issues had on personal contacts/ selling?	3.10 (1.08)	.627	.393
10　How often does your company consider environmental concerns in strategic 　　planning? (Scale 1–4)	2.62 (.84)	.667	.445
11　How often does your company examine environmental information in 　　business decision making? (Scale 1–4)	2.55 (.79)	.665	.442
12　How often does your company invite input from environmental groups 　　when making environmental business decisions? (Scale 1–4)	1.66 (.78)	.456	.208
Eigenvalue		4.525	
Total mean / Total variance explained	2.9	37.7%	
Reliability coefficient Alpha		.875	
Inter-item correlation range		.132– .697	
(p < for lowest correlation)		(p < .017)	

Fig. 2. Level of environmental activity of the respondents.

and the industry sectors (Q1) was analyzed by comparing the means of factor scores in one-way ANOVA (Table 4).

German and Finnish forest industries appear to be the most environmentally active with the highest means. However, the only statistically significant difference is that the British companies are less environmentally active than the other countries. The most environmentally active industry sector was the pulp and paper industry and was found to be significantly different than all other industry sectors (Table 4).

The variables measuring marketing strategies, structures, and functions logically fit into one dimension (Table 2) needed for an overall measure of greenness (Q2). However, the theoretical relationships between environmental emphasis

Table 3. Classification of environmental activity.

Level of environmental activity (Factor scores)	Number of companies	%	Mean of scores	Standard deviation
Not environmentally active (–2.46– –0.76)	90	20	–1.33	0.42
Slightly environmentally active (–0.77– 0.81)	274	60	–0.00	0.43
Environmentally active (0.82– 2.27)	90	20	1.34	0.40
Total	454	100	0.00	0.94

Table 4. Divergence of environmental activity by countries and industry sectors.

Country	Level of environmental activity Mean	Industry sector	Level of environmental activity Mean
Finland	.163	Pulp and paper industry	.457
Sweden	–.045	Sawmills and panels	–.142
Germany	.206	Secondary wood processing	–.052
UK	–.441	Marketing channels	–.172
		Paper and paperboard buyers	–.016
	F-Ratio = 11.64		F-Ratio = 6.19
	df = 3 p < .0001		df = 4 p < .0001

Table 5. Regression analyses predicting marketing structure formation from strategic level decisions and marketing function formation from strategic and structural level decisions.

	r	Standardized beta	t	p
Outcome regression of marketing structures from strategies, n = 428, R^2 = .320				
EE in strategic product decisions	.497	.346	7.525	.000
EE as competitive advantage	.438	.221	4.676	.000
EE in customer selection	.361	.140	3.091	.002
Constant		b = –1.946	–13.481	.000
Outcome regression of marketing functions from strategies and structures, n = 411, R^2 = .442				
EE in strategic product decisions	.480	.184	4.004	.000
EE as competitive advantage	.470	.219	4.810	.000
EE in customer selection	.275	–.035	–.815	.415
EE in values and philosophy	.513	.178	3.645	.000
EE in recruitment and training	.515	.223	4.363	.000
EE in planning and information systems	.491	.099	1.949	.052
EE in distribution channels	.351	.014	.322	.748
Constant		b = –2.393	–16.293	.000

(EE) in marketing strategies, structures and functions were examined in multiple regression analyses (path model) in order to test proposition 1. For this purpose, structural and functional level decisions were extracted into separate (dependent) factor score variables.

Results of regression analysis indicate that environmental marketing structures are affected by strategic level decisions, predicting 32% of the variance in structures. Furthermore, environmental marketing functions are affected by both strategic and structural level decisions, predicting 44% of the variance in functions. However, environmental emphasis in distribution channels and customer selection did not predict marketing function formation indicating that companies do

Table 6. Importance and role of forest certification for the company.

"How important would the following aspects of certification be to your company?" n = 454 1 = not at all important – 5 = very important	Mean Scale 1–5	Factor I	h^2
Your company can offer customers products from well managed forests	3.8	.779	.607
Your company can be seen to be promoting and implementing good forest management	3.8	.726	.528
Your company can use certification as a marketing tool (e.g. in advertising)	3.6	.725	.525
Your company can gain competitive advantage through certified forest products	3.3	.720	.519
Your company can respond to criticism by environmental groups concerning the origin of the wood products you sell	3.8	.562	.316
Your company can improve it s present environmental management performance	3.4	.560	.314
Eigenvalue		2.859	
Total mean / Total variance explained	3.6	46.8%	
Reliability coefficient Alpha		.838	
Inter-item correlation range		.293– .654	
(p < for lowest correlation)		(p < .001)	

not have a need to change their current strategies in this respect. Supporting P1, we interpret that high coefficients in this path model suggest support for the concept that environmental marketing structures and functions reflect marketing strategies. Implementation of the strategies is not possible without structures taking environmental issues into account.

4.3 Forest Certification as a Marketing Tool

According to the principles of environmental marketing, the functional level tools of marketing – such as the use of timber certification in marketing – should be in harmony with and a logical consequence of strategic and structural level decisions. The importance of forest certification was measured using six separate questions. Factor analysis was used to investigate the dimensions underlying the data and to reduce the data for further analysis (KMO = .84 and Bartlett s test p<.000). One and two factor solutions were considered. The initial Eigenvalue for the second factor (.78) indicated that a one-factor solution was most appropriate. Upon further consideration of the face validity of the items, a one-factor solution explaining 46.8% of the total variance was chosen (Table 6).

Means of all variables described in Table 6 are higher than the midpoint of the scale indicating that all aspects of forest certification are rather important to the responding companies. The one

factor solution can be viewed as the "*Importance of forest certification as a marketing tool*" because all the variables are dealing with some aspect of integrated marketing planning. With respect to research question 3, these results show how important respondents considered forest certification from the marketing point of view.

For further clarification of Q3 and for testing proposition 2, the divergence regarding the importance of forest certification as a marketing tool among countries, industry sectors, and category of greenness was analyzed by comparing the means of factor scores in one-way ANOVA (Table 7).

Results show that no statistically significant differences occurred among countries or industry sectors regarding the importance of timber certification as a marketing tool. Instead, the three categories of greenness were each found to differ from one another (Table 7). More environmentally active companies regard timber certification as a more important marketing tool than less environmentally active companies, thus supporting P2. Instead of the background factors – such as country or industry sector – the level of greenness better explains the divergence concerning the importance of timber certification as a marketing tool.

Table 7. Divergence of the importance of forest certification as a marketing tool among countries, industry sectors and greenness.

Importance of timber certification as a marketing tool n = 454	Mean	
Country		
Finland	.080	F-Ratio = 1.64
Sweden	.143	df = 3
Germany	–.082	p = .179
UK	–.096	
Industry sector		
Pulp & paper	.063	
Sawmills & panels	.131	F-Ratio = 1.73
Second. wood processing	–.165	df = 4
Marketing channels	.062	p = .142
Paper buyers	–.028	
Category of greenness		
Not environmentally active	–.600	F-Ratio = 37.85
Slightly environmentally active	.032	df = 2
Environmentally active	.503	p < .0001
Pairwise: Not active – Slightly active		p < .0001
Pairwise: Slightly active – Active		p < .0001

5 Discussion

5.1 Insights for the Forest Industries

Findings from this study offer a number of practical and theoretical insights from which implications can be drawn. These are considered with respect to the forest industry in general and the development of the body of knowledge in forest products marketing.

Environmental issues have had a significant impact on the forest industry worldwide. It is natural that companies seek to address environmental concerns of customers and other stakeholders. In this study, an overall measure of greenness in marketing planning was created successfully (Q2). The study results show that a majority of surveyed companies have at least partially integrated environmental issues into their marketing strategies and practices. The impact of environmental issues on marketing planning has been strongest among German and Finnish companies and within the pulp and paper industry (Q1). This probably indicates extensive investments in environmental technology done by the pulp and paper industry. Environmental

marketing is becoming the norm at some level but this development has been driven mostly by outside pressures and it has been a genuine proactive strategic decision only for some of the companies. An interesting finding is that British companies were less environmentally active than companies in the other surveyed countries. Even though the UK is often considered as an environmentally sensitive importing market of forest products this is not reflected in the marketing planning of British companies.

Given the attention to environmental issues, forest certification is considered to be an important marketing tool in all countries and the environmental emphasis in marketing planning is guiding companies to look for ways to utilize certification in their marketing (Q3, P2). No statistically significant differences occurred among countries or industry sectors in this respect. Instead, the companies level of greenness explains the importance of forest certification for the company. In general, the development of certification and its use in marketing has developed faster in Europe than, for example, in North America. As European companies integrate environmental issues into their marketing and gain experience in dealing

with environmentally sensitive customers, they will develop strategic competencies in this area. These competencies may provide inroads for European companies to further develop markets as an environmentally sensitive customer base continues to grow worldwide.

Even though a number of certification systems exist on different continents, it is important that companies follow the developments in Europe and consider the implications of those developments for the acceptance of various systems in the marketplace. The system that is accepted in the marketplace will naturally impact the forestry practices used on the ground. That is why, as we suggested earlier in this article, that now maybe more than ever, the marketing decisions made by a company will have significant impacts on the company s forestry operations. As proposed in this study, those companies that have aggressively incorporated environmental marketing concepts into their marketing planning are better prepared to capitalize on the opportunities presented by forest certification.

5.2 Insights for Marketing Theory and Practice

From the perspective of marketing theory the interrelationships among strategies, structures and functions in marketing planning were analyzed. Structures and functions are tools to implement strategies and logical relationships should exist between various planning levels. Juslin s (1992) integrated model of marketing planning was tested in this study with respect to environmental issues. Following the logic of the model, for example, green arguments in advertisements should be preceded by genuine environmental strategies. Naturally, the markets of the individual companies or of particular sectors might explain the range of empirical results. This study focuses on marketing planning decisions made in the surveyed companies and does not analyze the environmental orientation of markets perceived by these companies. The marketing theory applied in this study suggests that the reaction to environmental demands on markets should be hierarchical starting from environmentally oriented marketing strategies.

According to the results of regression analysis we found support for the idea that environmental marketing structures and functions reflect marketing strategies in the studied companies (P1). Use of certification as a marketing tool represents a functional level decision that reflects environmental activity in overall marketing planning (P2). However the relationships could have been deeper. This leads to both theoretical and practical considerations. Assumptions concerning the relationships between strategies, structures and functions have been tested in several studies with supportive results (Niemelä 1993, Martikainen 1994, Kärnä et al. 2001). As to the validity of the measurement instrument there is need for additional testing. In this study the measures of strategies, structures and functions were obtained through self-assessments from the respondent. One way to further develop measurements could be to acquire independent measures of strategies, structures and functions. The environmental emphasis in strategic product decisions could be observed, information concerning structural issues could be obtained directly from company personnel, and advertisements analyzed by content analysis. Kärnä et al. (2001) have examined the relationship between environmental marketing planning and green advertising. This type of independent measurement will allow new insight in testing the logic of both the planning model and marketing practice.

Deeper relationships among variables measuring strategies, structures and functions would indicate better integration of environmental issues into the entire scope of marketing planning. There is still room for enhanced execution of environmental marketing strategies through appropriate structures and functions. In addition, companies practicing genuine environmental marketing planning are best positioned to reap the potential market benefits of forest certification.

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