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SYSTEM VIEW ON ANALYSIS OF FIRM PERFORMANCE EFFECTS OF GREEN MARKETING PRACTICES

Greening the firm is raising concern for marketing managers. This study aims to examine the impact of the extent of green marketing practices on firm performance based on the environmental marketing systems model. The main research finding is that the extent of green marketing practices implemented by large Turkish firms relates positively with the green performance, competitive advantage and financial performance.

Keywords: *green marketing practices; environmental marketing systems model; firm performance; Turkish firms.*

JEL: *M30.*

Тулін Урал

СИСТЕМНИЙ ПІДХІД ДО АНАЛІЗУ ВПЛИВУ ЕКОЛОГІЧНИХ МАРКЕТИНГОВИХ РІШЕНЬ НА РЕЗУЛЬТАТИ ДІЯЛЬНОСТІ ФІРМИ

У статті доведено, що введення екотехнологій на фірмі є актуальною проблемою для менеджерів з маркетингу. На основі моделі екомаркетингових систем розглянуто вплив рівня вживання екологічних маркетингових рішень на результати діяльності фірми. Основний результат дослідження полягає в тому, що рівень застосування екологічних маркетингових рішень на великих турецьких фірмах позитивно співвідноситься з екопродуктивністю, конкурентними перевагами і фінансовими результатами діяльності.

Ключові слова: *екологічні маркетингові рішення; модель екомаркетінгових систем; результати діяльності фірми; турецькі фірми.*

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СИСТЕМНЫЙ ПОДХОД К АНАЛИЗУ ВЛИЯНИЯ ЭКОЛОГИЧНЫХ МАРКЕТИНГОВЫХ РЕШЕНИЙ НА РЕЗУЛЬТАТЫ ДЕЯТЕЛЬНОСТИ ФИРМЫ

В статье обосновано, что введение экотехнологий на фирме — актуальная проблема для менеджеров по маркетингу. На основе модели экомаркетинговых систем рассмотрено влияние уровня применения экологичных маркетинговых решений на результаты деятельности фирмы. Основной результат исследования заключается в том, что уровень применения экологичных маркетинговых решений на крупных турецких фирмах позитивно соотносится с экопроизводительностью, конкурентными преимуществами и финансовыми результатами деятельности.

Ключевые слова: *экологичные маркетинговые решения; модель экомаркетинговых систем; результаты деятельности фирмы; турецкие фирмы.*

Introduction. Despite heightened environmental alertness and awareness in the world, business community has not succeeded to combat the effects of environmental damage. In fact, putting green philosophy into practice at the firm level is not easy.

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Applying green marketing philosophy requires connecting the classical components of marketing and management to ecological issues (Danciu, 2008). The requirements of green marketing imply new thinking and acting towards new responsibilities and solutions. In this context, the motivation of a firm to manage the exchange process is emerging as an important issue. Kassaye (2001) indicates that the firm's major motivation to "go green" is financial rather than social. He finds that a firm's desire for more comprehensive and environment-friendly programs is due to financial goals. However, the studies on the relationship between green marketing practices and firm performance in the literature have generally had mixed results. This dilemma is because, while some studies have documented a positive relationship (e.g., Wahba, 2008; Nakao et al., 2007), others do not identify a positive impact of green marketing practices on firm performance (Wagner, 2005; Link and Naveh, 2006).

There are many arguments in the literature related to this discussion. Earlier ideas of researchers were that green objectives were a constraint to the economic goals of a business or that the economic objectives of a firm were a direct threat to environmental conservation (Sharma et al., 2010). For example, Mathur and Mathur (2000) state that green expenditures have negative effect on firm performance. On the other hand, Hart (2005) argues that the profit motive of a firm can accelerate organizational transformations towards global sustainability. Further, Lash and Wellington (2007) argue that firms will be at a competitive disadvantage if they do not pay attention to sustainability issues. Sharma et al. (2010, p.330) state that "researchers in several business disciplines have convincingly argued that environmentally responsible strategies can contribute to competitive advantage and superior financial performance". Consequently, there are two streams of research supporting the link between sustainability and superior financial performance. First, resource-based theory suggests that better access and utilization of resources will lead to competitive advantage and, as a result, better performance in terms of profitability (Hunt and Morgan, 1995). Second, empirical evidence suggests that ecologically conscious policies lead to better customer retention, which in return leads to better performance (Sisodia et al., 2007).

This paper contributes to the debate in the following ways.

The relationship between green marketing and firm performance depends on the extent of green practices implemented by a firm, because the real nature and extent of green marketing practices in business community are different across firms. This study suggests looking at the green marketing/firm performance relationship from the perspective of the extent of green marketing practices as a different point from current related studies (the extent of green marketing practices concept means the extent of their implementing effectively/successfully by a particular firm).

The harmonization between the interests of green consumers, firms and society as a whole is an imperative but difficult to put into practice. The findings in the literature are not congruent because previous studies have not analyzed the whole process from the angle of holistic approach, as the study proposes to do here.

This study focuses on the implementation of green marketing strategies. While there are several studies examining green marketing in the firm context, they are somewhat limited in implementation.

The study uses the environmental marketing systems model suggested by Nair and Menon (2008). The study goes one step further than their exploratory research, by testing the model in a different country and different conditions and using descriptive research type. In this context, the study develops new scales for measuring the extent of effective green marketing practices. Turkey may be an interesting research field. From perspective of culture, most of Turkish people have collectivist cultural values (Hofstede, 2006) and, these values and green purchase tendencies are relational in Turkey (Keles, 2007).

The study fills the gap in the green marketing literature, by classifying firms depending on the extent of effective green marketing practices and comparing to them based on firm performance. Research on taxonomy, the foundation of research on strategic management is one of the most important and fundamental step in scientific research, since taxonomy provides the basis for developing theories and testing hypotheses. Taxonomy also provides parsimonious descriptions and clusters them into categorical types without losing the main information or characteristics that exist within the type (Shang et al., 2010).

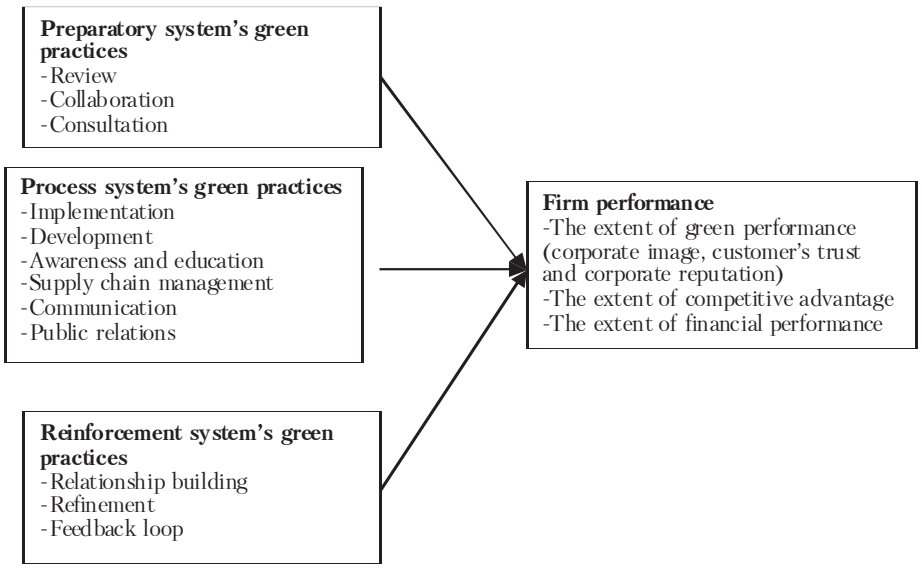

Figure 1. **Conceptual model: The effects of green marketing practices on firm performance**

Conceptual framework and hypotheses. Green marketing practices consist of all activities designed to generate and facilitate any exchanges intended to satisfy human needs or wants, the way that the satisfaction of these needs and wants occurs with minimal detrimental impact on the natural environment (Stanton and Futrell, 1987). The environmental marketing systems model developed by Nair and Menon (2008) is more appropriate to achieve research objectives of this study because it encompasses all practices for effective green marketing (for details of this model see Nair and Menon, 2008). The model covers 3 systems: preparatory system, process system and

reinforcement system (Figure 1). Each system has certain elements (the green marketing practices concept expresses the same meaning of the system elements concept in the explanations of the environmental marketing systems model. This paper sometimes uses the system elements concept instead of the green marketing practices concept as used in the original model).

The study hypotheses relate to the effect of systems elements (or green practices) on firm performance. The extent of effective implementation of systems elements may affect firm's outputs; green performance, competitive advantage and financial performance. Justification for all relationships among structures is based on the environmental marketing systems model and appears in the following sections.

Preparatory system's green practices and firm performance. Preparatory systems help organizations to lay the foundation of a good practice of environmental marketing and cover the review, collaboration and consultation parts. A self-evaluation of an organization's green performance is very important at the review stage. A self-evaluation does not only help a marketing manager to assess firm's present position but also helps him/her to understand the gap between where they are and where they want to reach in terms of their environmental goals. Collaboration is the second part within the preparatory system. Once marketing manager does the review, it is important to have an initial communication and consultation with the firm's key stakeholders. This communication should emphasize the fact that green marketing is a collaborative act for mutual benefits of all business associates of a firm (Nair and Menon, 2008). Communication helps a firm to win the stakeholders' confidence in its efforts to guarantee a sustainable survival of all the parties concerned. The role of consultation in green marketing also has vital importance. Consultation is not just for a certification part of green marketing, but a firm requires this practice for a specialized professional expertise that is unlikely to be found internally in an organization. Lozada (2003) argues that all these practices create value added and establish a source of competitive advantage for a firm. The firms which implement more effectively their preparatory stage may gain greater green performance, competitive advantage and financial performance compared to the firms which are not able to put into practice the essential elements of this stage properly.

H1a: Green performance relates positively with the extent of preparatory system's green practices implemented.

H1b: Competitive advantage relates positively with the extent of preparatory system's green practices implemented.

H1c: Financial performance relates positively with the extent of preparatory system's green practices implemented.

Process system's green practices and firm performance. The operational aspects of green marketing are the subject matter of this system. Process system includes green practices, such as obtaining ISO 14001 certification; development of green products, green packaging and services; education of firm's key stakeholders, supply chain management, using green communication and public relations.

Firms should formally follow the internationally accepted environmental standards (e.g., ISO 14000 and 14001 series certification). This adaptation gives a strong foundation to the organization for its green performance. The certification can easily upgrade green performance and develop a sustainable competitive advantage

(Wagner and Schaltegger, 2004; Aragon-Correa et al., 2008). Development of green products, packaging and services is another important activity to be followed in green marketing. A combination of all environment friendly products, packaging and services may achieve a better result than otherwise. The reason is that customers and other stakeholders look for a holistic solution to environmental problems (Nair and Menon, 2008). Creating awareness and providing environmental education to a firm's key stakeholders is another important practice. The initial collaboration that a firm attempts at the collaboration stage is usually with a limited number of key stakeholders. In the advanced stage, a firm should suggest the awareness and education campaign to all key stakeholders. This practice helps to create positive image of a firm and its products in the minds of stakeholders. A green marketing effort of a firm is complete only when all the partners in its supply chain go green. This approach helps to develop a green supply chain that delivers complete solutions to consumers' environmental needs. Additionally, this can reduce the costs of firm's green marketing practices to a considerable extent. Savitz and Weber (2006) suggest that a sustainable corporation is an important determinant that creates profit for its stakeholders while protecting the environment and improving the living of those with whom it interacts. The firms use green communication to commercially transmit environmental messages to consumers and other stakeholders. A firm should select a medium that supports environmental improvements and commitments. Public relations practices also have special importance. Public relations division should handle the public confusion, cynicism and lack of confidence in the firm's green initiatives. Incorporating consumers and managerial concerns about natural and physical environment contributes not only to superior business performance, especially in terms of competitive advantage, but also enhances corporate reputation (Sisodia et.al., 2007). Consequently, the firms which put into practice more effectively the process stage may gain greater green performance, competitive advantage and financial performance or vice versa.

H2a: Green performance relates positively with the extent of process system's green practices implemented.

H2b: Competitive advantage relates positively with the extent of process system's green practices implemented.

H2c: Financial performance relates positively with the extent of process system's green practices implemented.

Reinforcement system's green practices and firm performance. The third system called the reinforcement system relates to the continuous improvement of the green marketing systems. The system has 3 elements: relationship building with stakeholders, reinforcement and building feedback control system. This system helps to reinforce positively the firm's green marketing image in the minds of its stakeholders. A permanent and effective network helps everyone to benefit from this close-knit relationship building process with mutual goal to enhance environmental safety and improvement. In the reinforcement process, a green marketer should improve everything from resource utilization to product process, packaging, transportation, waste disposal etc. A green marketing strategy is never perfect, as it needs refinement and improvements from time to time. A perfect feedback control system can always help in the process of monitoring and refinement. The feedback loop provides timely and quality information from all the relevant sources. Therefore, the firms using these

effective ways at the reinforcement stage may gain greater green performance, competitive advantage and financial performance.

H3a: Green performance relates positively with the extent of reinforcement system's green practices implemented.

H3b: Competitive advantage relates positively with the extent of reinforcement system's green practices implemented.

H3c: Financial performance relates positively with the extent of reinforcement system's green practices implemented.

Method. The study analyzed the data from Turkey's largest 500 firms listed by Istanbul Industry Chamber in 2011. Large firm is more suitable as a sample unit for the purpose of the study, because they participate more in the responsible care voluntary program (King and Lenox, 2000) and have better environmental performance (Russo and Fouts, 1997). Although the study sent 500 questionnaires to marketing managers by e-mail, only 51 usable responses were received. Response rate occurs as 10%. The individuals primarily responsible for green marketing practices were the respondents. The study developed new scales based on Nair and Menon's model (2008) and relevant green marketing literature to measure the effectiveness level of green marketing practices and firm performance (author can send the survey items used in this study upon inquiry). The respondents indicate their firm's effectiveness level of implementation for each item, where 1 represents "strongly disagree" and 5 is "strongly agree". Firm performance scales are 3 types: green performance, competitive advantage and financial performance. All the performance scales are perceptual measures.

Data analysis. The study performs two main analyses. Multiple regression analysis explains the effect of green marketing practices on firm performance. Cluster analysis classifies the responding firms according to their green marketing practices level.

A reliability test based on Cronbach's alpha helps to assess whether study scales are consistent and reliable. The reliability value of each scale is well above 0.70, suggesting consistency and reliability (Churchill, 1991). In detail, for the green performance scale, alpha is 0.70, and for the preparatory system's green practices scale, it is 0.77. For the process system's green practices scale, alpha is 0.88, and for the reinforcement system's green practices scale, it is 0.89.

The effects of 3 green marketing systems on firm performances. Multiple regression models test the study's hypotheses employing ordinary least squares (OLS) estimation. The estimation model is given below and is estimated separately for green performance, competitive advantage and financial performance (dependent variables). Independent variables are the preparatory, process and reinforcement systems' practices. The analysis uses the mean value of each system.

(1) Green perfomance = $\beta_0 + \beta_1$ (preparatory system) + β_2 (process system) + β_3 (reinforcement system) + error.

(2) Competitive advantage = $\beta_0 + \beta_1$ (preparatory system) + β_2 (process system) + β_3 (reinforcement system) + error.

(3) Financial perfomance = $\beta_0 + \beta_1$ (preparatory system) + β_2 (process system) + β_3 (reinforcement system) + error.

Table 1 combines the 3 regression model results.

Hypothesis 1a predicts that the extent of preparatory system's practices relates positively to green performance for large firms. The results do not support this hypothesis.

Hypothesis 1b predicts that the extent of preparatory system's practices relates positively to competitive advantage for large firms. The results support this hypothesis ($p<0.05$). The direction of the relationship is as predicted and the standardized regression coefficient is positive ($\beta=0.50$). That is, higher level of preparatory system practices results in stronger competitive advantage. This finding demonstrates that self-evaluation of the organization's green performance, consultation with the firm's key stakeholders and consultation with professional experts at the initial stage of green marketing implementation lead to higher competitive advantage for large firms.

Hypothesis 1c predicts that the extent of preparatory system's practices relates positively to financial performance for large firms. The results support this hypothesis ($\beta=0.53$, $p<0.05$). The finding demonstrates that more effective preparatory system practices lead to better financial performance.

Hypothesis 2a predicts that the extent of process system's practices relates positively to green performance for large firms. The results support this hypothesis ($\beta=0.47$, $p<0.05$). This finding is likely to point out the overweight of process system practices relative to other two systems. This result may be natural because process system includes more visible practices such as producing green product, green packaging and services, having ISO 14001 certification, green communication and green public relations.

H2b predicts that the extent of process system's practices relates positively to competitive advantage for large firms. The results do not support H2b.

H2c predicts that the extent of process system's practices relates positively to financial performance for large firms. The results do not support H2c.

H3a predicts that the extent of reinforcement system's practices relates positively to green performance for large firms. The results do not support H3a.

H3b predicts that the extent of reinforcement system's practices relates positively to competitive advantage for large firms. The results do not support H3b.

H3c predicts that the extent of reinforcement system's practices relates positively to financial performance for large firms. The results do not support H3c.

Table 1. **The effects of three green marketing systems on firm performances**

Variables	Green performance		Competitive advantage		Financial performance	
	Beta	p	Beta	p	Beta	p
Constant		0,00		0,00		0,00
Preparatory st.	0,08	0,60	0,50	0,01**	0,53	0,01**
Process st.	0,47	0,01**	0,27	0,19	0,32	0,17
Reinforcement st.	0,22	0,32	-0,14	0,58	-0,49	0,11
	$R^2 = 0.53$ F = 18.093 Sig.F = 0.00 Dur.W. = 1.608		$R^2 = 0.34$ F = 8.064 Sig.F = 0.00 Dur.W. = 2.139		$R^2 = 0.16$ F = 3.168 Sig.F = 0.00 Dur.W. = 1.357	

Notes: 1. Dependent variable: green performance, competitive advantage, financial performance
2. Abbreviations are referred to R^2: Coefficient of determination. F: F value.
Sig. F: Significance of F value. p: Significant level. Dur.W: Durbin-Watson test statistics.

Classification of large Turkish firms into groups depending on their effective green implementation level. The study categorizes 51 firms into 3 groups based on their effective implementation level of green marketing systems using two-stage cluster analysis techniques. The study uses mean scores of the systems for classification. Cluster analysis assigned 27 to Group 1, 19 to Group 2, and 5 to Group 3.

Classification process has the hierarchical clustering stage and K-means or non-hierarchical clustering stage. Nousis (1993) suggests to specify number of clusters using the coefficients which indicate the Squared Euclidean Distance between two cases in the agglomeration schedule. After examining the output, the study determined a three-cluster solution to describe the firm's tendencies. Then, K-Means cluster analysis to produce only one solution was used. Canonical discriminant functions (Klecka, 1980) demonstrated the nature of segment differences, and explain 100% of the variance.

Interpretation of clusters. ANOVA test examines whether the effective implementation level of green marketing systems differs among these 3 groups. Table 2 shows the ANOVA test results in terms of systems' values. 3 groups differ significantly in all 3 systems at the $p<0.01$ significance level.

Table 2. **Anova results**

	Cluster		Error			
	Mean square	df	Mean square	df	F	Significant
Preparatory stage	8,28	2	,27	48	29,85	0,00
Process stage	11,28	2	,21	48	53,08	0,00
Reinforcement stage	14,34	2	,21	48	67,93	0,00

Table 3 shows the comparison of system scores. Group 1 has its highest centroid scores on all the 3 systems. Group 2 has its medium centroid scores on all the 3 systems. Group 3 has its lowest centroid scores on all the 3 systems. From cluster analysis, 3 groups emerge basing on the scores of the effective implementation level of green marketing systems; real-green volunteer group, law-abiding green group and green-washer group. Real-green volunteers really have green marketing philosophy and set up effective preparatory, process and refinement systems within their firms. They are true believers in green marketing philosophy. They manage properly green marketing practices and are the greenest firms in all the groups. The law-abiding greens comply only with legal requirements. Green-washers do not really implement green marketing philosophy. They show themselves to stakeholders as if they would be a green firm. In other words, they act as if they apply green marketing. They need motivation.

Table 3. **Final cluster centers**

Segments' Name	Real-green volunteers	Law-abiding greens	Green-washers
Clusters	1	2	3
Preparatory stage	4,18	3,63	2,24
Process stage	4,33	3,40	2,26
Reinforcement stage	4,58	3,59	2,18

Differences in firm performances among the 3 groups, ANOVA test. One-way ANOVA tests differences in firm performances among the 3 groups (Table 4). Since

the statistically significant level is less than 0.01, it is concluded that firm performance indices significantly differ among the 3 groups. Overall, real-green volunteer group has a better green performance and competitive advantage than the other two groups. The results also indicate that the law-abiding green group has better firm performance with respect to financial performance than the real-green volunteer group and green-washer group. Green-washers have the worst green performance, competitive advantage and financial performance among all 3 groups.

Table 4. **Firm performance differences among 3 groups, one-way ANOVA**

				ANOVA results	
	N	Mean	Std. Dev.	F-value	Sig.
Green perfomance					
Real-green volunteers	27	4,62	,38	15,16	,00
Law-abiding greens	19	4,20	,39		
Green-washers	5	3,20	1,38		
Competitive advantage					
Real-green volunteers	27	4,69	,54	6,60	,00
Law-abiding greens	19	4,30	,73		
Green-washers	5	3,40	1,51		
Financial perfomance					
Real-green volunteers	27	4,50	,81	3,12	,05
Law-abiding greens	19	4,65	,58		
Green-washers	5	3,60	1,67		

Conclusion and discussions. This study examines green marketing practices of large firms in Turkey. The article specifically addresses the firm performance/green marketing relationships in basing on the system view.

The extent of effective preparatory system practices relates positively to competitive advantage and financial performance of firms. This finding supports the results of the studies conducted by Engardio (2007); Esty and Winston (2006) and Hart (2005). Hence, the findings demonstrate that higher level of process system practices leads to better green performance. Process system encompasses green practices, such as obtaining ISO 14001 certification; development of green products, packaging and services; education of firm's key stakeholders and using green communication. These practices will help to improve firm's green image and performance in the minds of stakeholders.

Another important result is that the firms' behaviors towards green marketing are not homogeneous. Overall, real-green volunteer group has a better green performance and competitive advantage than the other two groups. The results also indicate that the law-abiding green group has better firm performance with respect to financial performance than the real-green volunteer group and the green-washer group. Green-washers have the worst green performance, competitive advantage and financial performance among all 3 groups.

The findings of this study are useful for both managers and researchers. Marketing managers should put importance to determine green vision and green objectives when they prepare firms' plans. Preparatory system practices help a firm to lay foundation of a good practice of green marketing, and as a result, have better competitive advantage and financial performance. They should produce green products; deliver green services and green packaging. For policy makers, the study suggests

increased financial incentives and establishing more proactive partnership between local authorities and industry. In addition, they should be careful to green-washers and motivate them permanently.

This study is, however, affected by several limitations. Although high reliability coefficients of scales may reflect strong evidence concerning the applying of the scales, researchers would need to adapt them to different firm groups and in multi-national context. The study measures competitive advantage and financial performance constructs by a single item. Although single item measurement for these constructs is a weakness of this study, many studies in the literature have used the total measurement scale. Many researchers demonstrate that single items are valid for capturing complex constructs (Bergkvist and Rossiter, 2007) and suitable for management research (Ellis et al., 2010). Further, single items assume that the item completely measures the construct and has zero measurement error.

Future research should use qualitative methods such as depth research projects, case studies to strengthen the persuasiveness of the findings.

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Стаття надійшла до редакції 16.05.2012.