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Assessing the greenness of environmental advertising claims made by multinational industrial firms

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Research Highlights

- We focus on environmental claims in green advertisements.
- We use legitimacy theory to develop our research hypotheses.
- We examine advertising greenness in conjunction with focal points, evaluation areas, leverage aspects, driving forces.
- We conduct a content analysis of 383 green magazine advertisements by multinational firms producing industrial goods.
- All green advertising dimensions examined were found to differ in accordance with the degree of advertising greenness.

Assessing the greenness of environmental advertising claims made by multinational industrial firms

Abstract

Growing skepticism about green advertisements calls for a thorough investigation of the environmental claims made by firms. This is particularly important in the context of industrial and international markets, where research on the subject is virtually non-existent. By employing legitimacy theory, this article develops several research hypotheses linking various dimensions of environmental claims made in green advertisements (i.e., focal points, evaluation areas, leverage aspects, driving forces) with advertising greenness (i.e., shallow, moderate, deep). It then tests these hypotheses with data obtained from a content analysis of 383 green magazine advertisements by multinational firms producing industrial goods. In accord with legitimacy theory, the results indicate that, the stronger the greenness of an advertisement: (a) the greater the use of focal points relating to product, processes, image, and facts; (b) the more specific, strong, substantive, and acceptable are the issues raised; (c) the higher the employment of rational, emotional, and moral points to leverage environmental matters; and (d) the sharper the driving forces relating to the planet and its flora, fauna, and human entities. Several important conclusions, managerial implications, and directions for future research are derived from these findings.

Keywords

Green advertising; Environmental marketing; Environmental claims; International advertising; Legitimacy theory.

1. Introduction

In an era of increasing public concern, stricter government regulation, and intensifying stakeholder pressures to preserve the environment, the use of environmental advertisements has increased exponentially (Hartmann & Apaolaza-Ibáñez 2012). This is because green advertising plays a crucial role in helping firms to inform, persuade, and remind current and potential customers about the environmentally friendly nature of their manufacturing processes, operating systems, products/services, and other business activities (Chan, *et al.* 2006). Communication efforts of this kind result in a number of benefits, such as promoting green purchasing attitudes among buyers (Iyer & Banerjee 1993), cultivating an ecological spirit among employees, suppliers, and partners (Grant 2007), building an eco-friendly reputation and boosting social legitimacy for the firm (Grillo, *et al.* 2008; Parguel, *et al.* 2011), and helping to retain/attract customers, especially among the eco-sensitive segments of the market (Davis 1993).

The critical role played by green advertising in shaping intra-, inter- and extra-organizational attitudes and behaviors concerning environmental issues has attracted the attention of many scholars, who have produced dozens of articles on the subject (for a review, see Leonidou and Leonidou (2011)). Notably, the thrust of this research revolves around green environmental claims, defined as information aiming to show how the advertiser and/or the brand/product advertised contribute to the improvement of the environment and/or the reduction of ecological degradation (Polonsky, *et al.* 1997). Such claims are the most visible signs of eco-friendly marketing and, therefore, are inevitably responsible for shaping people's attitudes toward the sponsoring organization, creating likes/dislikes for the product advertised, and influencing customer intentions for product purchases (Newell, *et al.* 1998; Nair & Menon 2008).

Environmental claims made in advertisements do not necessarily coincide with what firms actually do in their business activities. In fact, growing evidence shows that some companies tend to overestimate the positive environmental aspects of their business, while at the same time underestimating its negative green dimensions (Advertising Standards Authority 2008). For example, a firm may overstress the gaining of a green award, but downplay its poor environmental performance as a result of engaging in an ecological disaster (Walden & Schwartz 1997). However, a firm's failure to act responsibly when sending inaccurate advertising messages will mislead and/or confuse various target audiences, who may respond by reducing demand for its products/services, cultivating a feeling of distrust of its operations, making wrong purchasing decisions, or even taking retaliatory measures, such as buyer boycotting (Polonsky & Hyman 2007). In contrast, sending accurate, sincere, and unbiased green advertising messages to these audiences can have positive repercussions on the firm's activities (e.g., improved reputation, loyalty enhancement, repeat purchase) (Davis 1993; Grillo, *et al.* 2008; Parguel, *et al.* 2011).

Despite the useful insights gained from extant research on environmental claims in advertising, this body of research suffers from a number of problems which limit its further advancement: *first*, it examines various issues pertaining to environmental claims (e.g., misleadingness, ethicality, focal points) in isolation from each other; *second*, it sheds little light on the association between the degree of advertising greenness and various dimensions of environmental claims made in these advertisements; *third*, it primarily focuses on consumer products/services, with environmental advertising practices of industrial goods producers only tangentially tackled; *fourth*, it puts little emphasis on environmental advertising claims made by international firms, despite growing global trends for greater

sensitivity to green issues; and *fifth*, it is relatively atheoretic, since only few attempts have been made to examine green advertising issues from a specific theoretical perspective.

This study aims to address the aforementioned problems by providing a comprehensive framework for analyzing environmental claims made in industrial advertisements by multinational firms and demonstrating how various dimensions of these claims differ according to the degree of advertising greenness, namely shallow, moderate, and deep green (see **Appendix A** for examples in each of these categories). Shallow green advertisements are regarded as those having a general environmental focus, moderate green advertisements as those lacking focus on the eco-friendliness of product/service, but touching upon specific wider environmental aspects, and deep green advertisements as those addressing environmental issues in great depth and/or mentioning unique/innovative environmental actions that were implemented (Benerjee, *et al.* 1995). Specifically, our study investigates how these three different shades of advertising greenness are associated with environmental claims in terms of: (a) *focal points*, that is, product-orientation, process-orientation, image-orientation, and environmental facts; (b) *evaluation areas*, that is, claim specificity, claim emphasis, claim substantiveness, and claim validity; (c) *leverage aspects*, that is, rational, emotional, or moral execution styles; and (d) *driving forces*, that is, planet, animals, plants, and human beings.

Several compelling reasons justify the execution of this research in the context of international industrial advertisers. First, buyers would like to know whether the products that they purchase are produced by firms using environmentally friendly raw materials, equipment, and processes, since this is an important consideration in purchasing decisions (Davis 1993). Moreover, an increasing number of industrial manufacturers are interested in

knowing about the eco-friendliness of the materials and equipment that they use in their manufacturing operations, in order to conform to environmental regulations and/or become more proactive about green issues (Nidumolu, *et al.* 2009). Furthermore, the accelerating internationalization of industrial firms leads them to increasingly confront on a global scale challenges pertaining to heightened ecological public concern, environmental regulatory intensity, and eco-based competition (Christmann & Taylor 2002). Lastly, heeding the call for stronger theoretical backing in international advertising research (Taylor 2010), this study employs legitimacy theory to enhance our knowledge regarding the green advertising practices of multinational firms.

Legitimacy theory, which lies on the premise that organizations try to legitimize their behavior in the society through the communication of certain messages to various interested parties (e.g., governments, investors, buyers), provides a fertile base for exploring the greenness of environmental claims made by multinational corporations for a number of reasons: *first*, environmental claims made in advertising messages comprise vital information aiming to stress the firm's eco-friendly behavior and preserve its social contract with society; *second*, multinational firms, due to their global presence, large size, and colossal impact, are highly visible and, therefore, more likely to be subjected to close surveillance by various societal groups; *third*, green advertisements, focusing on either corporate or product-related issues, provide a crucial means through which organizations strive to achieve legitimacy in the eyes of society members; *finally*, producers of industrial goods often operate in sectors that are hazardous for the environment and, as such, have a greater need to implement communication strategies that will legitimize their actions.

Using legitimacy theory as our theoretical lens, we aim to address several managerially-salient questions: (a) Which environmental actions of multinational industrial firms are used in their communication campaigns to promote their social standing? (b) How “green” are the advertising messages used by these firms to enhance their legitimacy in the marketplace? (c) What specific claims are made in their advertisements in order to communicate aspects of their environmentally friendly behavior to various target audiences? (d) Are the advertising claims made by these firms conducive to achieving the desired degree of green image they are aiming for in the market? and (e) What specific claim characteristics have to be combined in order to convey green advertising messages that are truly socially responsible?

The remainder of this article firstly offers a thorough review of the extant literature of environmental claims in green advertising. This is followed by an explanation of the theoretical background of the study, which is based on legitimacy theory. The conceptual framework and the development of research hypotheses are subsequently presented. The article then provides details regarding the investigation method employed. Following the data analysis, we proceed with a discussion of the research findings. The article ends with several important conclusions, managerial implications, and directions for future research.

2. Literature on green advertising claims

The literature on green advertising claims has been relatively extensive, taking many different directions. Banerjee *et al.* (1995) were among the first to introduce the idea of *advertising greenness*, defined as the extent of the environmental focus in the advertisement. Based on this conceptualization, the authors classified green advertisements as shallow (i.e., vague reference to a green issue, such as saying that the product is biodegradable), moderate (i.e., little detail in describing an environmental issue relating to the product, but mentioning

specific issues like recycling), and deep (i.e., in-depth discussion of an environmental issue or mentioning green behaviors not widely practiced). By using this typology, they found that the majority of green advertisements were of shallow or moderate greenness, which was true for both TV and print advertisements examined. Wagner and Hansen (2002) extended this classification scheme to include five levels of advertising greenness, which, from the weakest to the strongest, were brown, brown-green, little green, green, and extra green. They found that extra green was the dominant category, although a sizeable number of advertisements belonged in the brown category.

With regard to the *focal points* of green advertisements, Iyer and Banerjee (1993) used three dimensions focusing on various facets of the economic chain, namely production, consumption, and disposition. Although this typology was not applicable in the case of two-thirds of the advertisements they examined, the rest focused mainly on production issues (especially the raw materials used), as opposed to consumption/disposition considerations which received scant attention. Carlson *et al.* (1993) offered an alternative classification of focal points in green advertisements that included product orientation (i.e., focusing on eco-friendly attributes of product), process orientation (i.e., dealing with a production technology/technique that yields environmental benefits), image orientation (i.e., associating with a cause or activity that has the broad-based support of the public), and environmental fact (i.e., including an independent statement about the environment at large or its condition). By combining this typology with 'green washing' issues, they found that misleading/deceptive claims were associated more with product orientation and image enhancing, while acceptable claims were more relevant to environmental facts. Easterling *et al.* (1996) adopted the previous typology to analyze the content of environmental advertisements over a 25-year period and found that the emphasis was mainly on product

orientation and image orientation, while process orientation and environmental facts were rarely stressed.

Another group of studies explored the *evaluation areas* of environmental claims made in green advertisements. For example, Davis (1993) stressed the need to present objective, concrete, and factual claims when describing the green characteristics and benefits of a company/product, because this seriously affected buyers' perceptions. His study found that the vaguer the environmental claim, the more manipulative, deceptive, and unethical was the advertiser perceived to be by the buyer. Another study, conducted by Kangun *et al.* (1991), showed that more than half of the green advertisements examined contained at least one misleading or deceptive claim, which was attributed to the lack of adequate standards in environmental advertising and the intensive competition prevailing in the marketplace. In a similar vein, Carlson *et al.*'s (1993) content analysis of 100 green advertisements revealed that in most cases environmental claims were misleading/deceptive, rather than acceptable in nature.

The *leverage aspects* (whether rational, emotional, or moral) used in presenting green advertising claims provided another venue of research. Iyer and Banerjee (1993) found that the most frequently employed execution style in green advertising claims was 'zeitgeist' (i.e., a reflection of the general climate prevailing at a time), followed by management aspects (i.e., the proactive involvement of the firm in green activities), and emotional appeals (i.e., provoking fear, guilt, and joy with regard to green issues). Kärrnä *et al.*'s (2001) analysis of 167 advertisements in the Finnish forest industry revealed that both emotional and rational appeals were the most commonly adopted by firms that were environmentally active. Wagner and Hansen (2002) also found that, in the majority of cases, green advertisements used a

rational appeal, while emotional, moral and 'zeitgeist' appeals were employed on a less frequent basis.

Another line of research referred to the *driving forces* of green advertising claims. Ottman (1991) identified three areas in this regard, namely planet, animal life, and personal health. Iyer and Banejee's (1993) study of 173 advertisements revealed that planet preservation was the most extensively used target (found in 78% of the advertisements), while animal life and personal health were less frequently targeted. However, in a subsequent study by Banerjee *et al.* (1995), which compared environmental TV commercials with print advertisements, different results were observed: while TV commercials emphasized more issues pertaining to land, water, and plants, the focus of print advertisements was mostly on land and animals. In a study by Kärrnä *et al.* (2001), environmentally active firms were found to place more emphasis on planet preservation issues, as well as health protection or the well-being of future generations, compared to their less green counterparts. Wagner and Hansen's (2002) study of green advertisements in the forest product industry also indicated that planet preservation was the main theme mentioned (reported in 70% of the advertisements), while animal life and personal health received much less attention (found in 19% and 11% of the advertisements respectively).

A final set of studies focused on *buyers' attitudes and reactions* to environmental advertising claims. For example, Newell *et al.* (1998) found that deceptive environmental claims had a negative impact on consumer attitudes toward corporate credibility, the advertisement itself, the brand advertised, and the intention to buy the product mentioned in the advertisement. Also, Chan's (2000) study among 800 Chinese buyers identified substantive claims as being more effective (in terms of creating favorable attitudes toward the advertisement, the brand

advertised, and purchase intention) than associative claims when the source country was perceived as being environmentally friendly, while the reverse was true when the source country was perceived as being ecologically non-friendly. The study by Chan *et al.* (2006) among 1200 individuals also confirmed that environmental claims had a positive effect on the communication effectiveness of advertisements for both high-involvement and low-involvement services, although substantive claims generated more positive attitudes than associative claims in the case of high-involvement services. Hu's (2012) study in the hotel sector revealed that green advertisements containing substantive environmental claims were more likely to yield favorable buying responses as opposed to those making associative claims. Finally, Hartmann and Apaolaza-Ibáñez (2010) found positive emotional and behavioral effects toward visual advertisements representing biospheric nature imagery (e.g., forest trees), as opposed to advertisements featuring urban and desert landscapes.

3. Theoretical foundation

As noted earlier, our study is anchored on legitimacy theory, which has its roots in the political economy paradigm (Deegan 2002). This theory adopts a systems-oriented perspective, whereby an organization (a social system) is viewed as a component of the society (a wider social system) with which it constantly interacts, each affecting in this way the other's inputs and outputs (Gray, *et al.* 1995). For an organization to secure its smooth operation, and even its mere existence, it is important to comply with society's values and norms, which change over time (Brown & Deegan 1998). Thus, to obtain legitimacy for its actions, the organization needs to continuously respond to these changes and make sure that its own value system is in harmony with the value system of the society within which it operates (Lindblom 1994). Consequently, the disclosure by top management of information regarding their organization's socially responsible activities is considered of paramount

importance in shaping society's favorable perceptions, thus safeguarding its legitimacy (Cho 2009).

Central to legitimacy theory is the notion of 'social contract' between the organization and the society, where the former assumes the responsibility to provide economic, social, political, and allied benefits that are both legitimate and relevant to the latter (Shocker & Sethi 1973). In return, the society (which represents a collection of institutions and individuals) provides the organization with a legal standing and the authority to own and use natural resources to produce products/services, which incur certain costs (such as harming the environment) (Mathews 1993). To legitimately exist, the benefits granted by the society to the organization to perform its activities should always exceed costs, otherwise the social contract can be revoked (Deegan & Rankin 1996). Should this contract be breached, the society may impose various monetary (e.g., financial penalties) and/or non-monetary (e.g., stringent regulations) measures on the organization that will compensate for the higher costs (Deegan 2002).

Organizations that are more vulnerable to legitimacy threats, and therefore have a greater need to disclose information to justify their legitimacy, are those: (a) having a greater environmental (or social) impact, because any harmful effect on society is more likely to provoke reactions from governments, the public, and other stakeholders; (b) being of a larger size, because their business operations are widely visible to members of society and therefore more open to retaliatory actions; (c) having wider international exposure, because political-legal, socio-cultural and economic differences across countries may increase the possibility of being seen as 'bad citizens'; and (d) with a more direct connection with end-users, because marketing and other business activities can have a more immediate effect on people's lives (Patten 1991; Branco & Rodriguez 2006). However, conceptualizing and responding to these

threats is a rather subjective process, since this will largely depend on top management perceptions (Deegan 2002).

To legitimize their actions and maintain the social contract with society, an organization may take various courses of action: (a) adjust its goals, operating methods, and outputs to be consistent with prevailing definitions of legitimacy (e.g., adopting eco-friendly standards); (b) associate itself with other institutions that have a strong legitimacy base (e.g., by becoming a member of an environmental association); (c) redefine the meaning of social legitimacy so as to conform to its own business values and norms (e.g., lobbying to relax environmental regulations); and (d) identify itself with symbols, values, and beliefs shared by the constituent parties of the society (e.g., gaining an environmental award) (Dowling & Pfeffer 1975). In sum, the organization may take substantive (e.g., altering resource dependencies) and/or symbolic (e.g., offering apologies to the public) approaches to gain, maintain, or repair legitimacy (Ashforth & Gibbs 1990).

In an effort to legitimize their actions, organizations may use various communication tools (e.g., advertisements, annual reports, web-pages) that can help to convey specific messages to various target audiences (Lindblom 1994). At times, several communication legitimization strategies have been proposed, which can be broadly classified into three major groups: (a) *image enhancement strategies*, where the organization discloses self-praising information to stress its socially responsible character, as in the case of announcing accomplishments with regard to ecological issues; (b) *avoidance/deflection strategies*, where the organization redirects or deflects people's attention from a specific social problem (e.g., ecological disaster) to other related (e.g., recycling programs) or unrelated (e.g., financial achievements) issues; and (c) *disclaimer strategies*, where the organization transmits disclaimer information

in which it denies that it has been engaged in events, matters or incidents (e.g., polluting the bio-physical environment) with a negative or harmful impact on society (Cho 2009).

4. Conceptual framework and research hypotheses

Our conceptual framework builds on the Means-End Chain Conceptualization of Advertising Strategy (MECCAS) model (Wagner & Hansen 2002) (see **Fig. 1**).¹ Specifically, this framework includes four different components of an environmental advertisement, namely focal points, evaluation areas, leverage aspects, and driving forces, which are seen in conjunction with the degree of advertising greenness (whether shallow, moderate, or deep). The overall expectation that emerges here is that multinational industrial firms attempt to create social legitimacy through ‘greener’ forms of advertisements, by placing considerable emphasis on each of the four components of environmental advertising claims. In this context, we examine four key hypothesized associations between each of these components and the degree of advertising greenness.

Place Fig. 1 Here

Focal points of environmental advertising claims refer to the product’s eco-friendly attributes, the firm’s environmentally-friendly technology, production technique, or disposal method, the association of the firm with an environmental activity enjoying public support, and independent statements of a factual nature related to the environment (Carlson, *et al.* 1993).² From a theoretical perspective, focal points emphasize various aspects of the firm’s ecological behavior (e.g., product, processes, image, facts) that help to improve its environmental standing and enhance its social legitimacy (Cho 2009). This is because focal points illustrate in greater detail the environmental claims of the firm and provide convincing reasons for the arguments made by multinational firms to support the natural environment and society at

large. As such, they are more likely to be found in deep green advertisements, which are characterized by a more extensive discussion of green issues and practices (Banerjee, *et al.* 1995). The use of focal points is particularly important in the case of industrial goods, because of their greater technological complexity, more harmful effects on the environment, and stronger interactions between buying and selling organizations. In fact, the technical background of industrial buyers makes them more demanding, requiring adequate, detailed, and comprehensive information about suppliers' environmental practices that will help them to make more eco-sensitive purchasing decisions (Hoejmose, *et al.* 2012). Importantly, ecological issues are becoming increasingly relevant in international markets not only for the buyers of multinational industrial firms, but also for other stakeholder groups, such as host governments, pressure groups, and regulatory bodies. Hence, for these firms to make their legitimacy more convincing, deep green advertisements are expected to incorporate more extensive information on eco-friendly claims pertaining to product, process, image, and factual elements, as opposed to shallow green advertisements. Based on the above, we can hypothesize that:

H_{1a}: *The greater the greenness of the international advertisement, the more evident is the use of environmental claims related to product orientation.*

H_{1b}: *The greater the greenness of the international advertisement, the more evident is the use of environmental claims related to process orientation.*

H_{1c}: *The greater the greenness of the international advertisement, the more evident is the use of environmental claims related to image orientation.*

H_{1d}: *The greater the greenness of the international advertisement, the more evident is the use of environmental claims related to environmental facts.*

Evaluation areas focus on whether environmental claims are specific or vague, strong or weak, substantive or associative, and acceptable, ambiguous, omissive, or false. Based on legitimacy theory, a multinational industrial firm can legitimize its actions through the incorporation of specific, strong, substantive, and acceptable environmental claims in their advertising messages (Lindblom 1994). With regard to *claim specificity*, specific green claims

are more likely to provide detailed, relevant, and clear information about the environmental attributes of the company and its products, and, as such, are more likely to be found in deep green advertisements, as opposed to vague claims that are less informative in terms of determining ecological differences (Davis 1993). *Claim emphasis* is also expected to vary according to advertising greenness, with stronger emphasis expected to be found in deep green advertisements, where there is greater discussion of green issues (Davis 1993). *Claim substantiveness*, that is, the presentation of concrete information about the eco-friendly responsible efforts of the firm, is also more likely to be found in deep green advertisements, mainly due to their greater ability to support the alleged environmental benefits of the company/product advertised, as opposed to associative claims (Chan, *et al.* 2006). Finally, *claim validity*, which refers to the degree of the claim's non-ambiguity, is expected to be higher with the increase in advertising greenness, mainly because of the need to express the advertiser's green behavior truthfully and transparently (Carlson, *et al.* 1993). In sum, the use of specific, strong, substantive, and acceptable environmental claims is more likely to be found in deep, rather than shallow, green advertisements, enhancing in this way the multinational firm's legitimacy in foreign countries. Thus, we can posit the following:

H_{2a}: *The greater the greenness of the international advertisement, the more evident the use of environmental claims that are more specific.*

H_{2b}: *The greater the greenness of the international advertisement, the more evident the use of environmental claims that are more strong.*

H_{2c}: *The greater the greenness of the international advertisement, the more evident the use of environmental claims that are more substantive.*

H_{2d}: *The greater the greenness of the international advertisement, the more evident the use of environmental claims that are more acceptable.*

Leverage aspects of environmental claims refer to the execution style of the advertisement, whether rational (e.g., stressing the energy conservation caused by the introduction of a special ecological system), emotional (e.g., creating fear of the threat to life by pollution of the environment), or moral (e.g., showing that it is not ethical to have high CO₂ emissions) appeals (Wagner & Hansen 2002). Firms may employ any of these styles (or even combine

them) to communicate to various target groups that they care about the environment, thereby providing further support for legitimizing their activities in the society (Lindblom 1994). However, due to the highly technical, complex, and sophisticated nature of industrial goods, rational, as opposed to emotional and moral, appeals are expected to be more extensively used in environmental claims (Grillo, *et al.* 2008). In fact, there is evidence to show that the deeper the greenness of the advertisement, the more extensive the use of rational, emotional, or moral appeals to increase the impact of the message communicated to the target audience(s) (Kärnä, *et al.* 2000). Such appeals help to illustrate in a more vivid way the environmental claim made, through the provision of rational points, affecting feelings, and influencing people's consciences (Grillo, *et al.* 2008). As a result, the multinational firm will manage to gain both the minds and hearts of various stakeholder groups in different countries, thus enhancing the correctness and acceptability of their business operations. We can therefore conclude that:

H_{3a}: *The greater the greenness of the international advertisement, the more evident is the use of environmental claims expressed in a rational style.*

H_{3b}: *The greater the greenness of the international advertisement, the more evident is the use of environmental claims expressed in an emotional style.*

H_{3c}: *The greater the greenness of the international advertisement, the more evident is the use of environmental claims expressed in a moral style.*

Within the context of environmental claims, *driving forces* are the overriding green values that an advertising claim is seeking to promote or suggest, such as planet preservation, animal life protection, flora conservation, and safeguarding the health of human beings (Wagner & Hansen 2002). A well-designed green advertisement by multinational industrial firms should clearly stress any of these elements in order to sensitize existing customers and attract new ones, particularly from the eco-sensitive segments of the market. Although driving forces have a more immediate effect on end-users (because they are directly related to the quality, healthiness, and even existence of their lives), they also concern industrial buyers, due to their intervening role between suppliers and final consumers. Ultimately, the environmental image

of an industrial buyer in the end-user market will greatly depend on the quantity and quality of the eco-friendly nature of equipment, materials, and processes obtained from their suppliers. Legitimacy theory suggests that a communication effort capitalizing on these driving forces would be an important building block toward the creation of social legitimacy (Lindblom 1994). In fact, these forces are expected to be more profound in the case of deep green advertisements, mainly because: (a) they can demonstrate in a more convincing way the firm's caring and support for different facets of the environment (e.g., life on earth); (b) they provide useful and informative material to be used as the basis for more in-depth discussion of the environment; and (c) they arouse the buyer's interest and involvement in green issues that have a direct impact on the well-being of humankind. Hence, the following hypothesis can be made:

H_{4a}: *The greater the greenness of the international advertisement, the more evident is the use of environmental claims related to preservation of the planet.*

H_{4b}: *The greater the greenness of the international advertisement, the more evident is the use of environmental claims related to animal protection.*

H_{4c}: *The greater the greenness of the international advertisement, the more evident is the use of environmental claims related to plant conservation.*

H_{4d}: *The greater the greenness of the international advertisement, the more evident is the use of environmental claims related to safeguarding human well-being.*

5. Investigation method

The study concentrated on magazine advertisements with an environmental focus that were used by multinational firms producing industrial goods. These advertisements were identified from *The Economist*, a reputable international business magazine with a weekly circulation of over one million copies (half of which are sold in the USA). To identify international green advertisements for industrial goods, all issues of this magazine published during the last twenty years were visually inspected by two specially trained research assistants who worked independently of each other. The two sets of advertisements obtained were compared and contrasted, resulting in a commonly agreeable set of 383 green advertisements that provided

the basis of the analysis. The major advertisers were Shell (7.0%), Asea Brown Boveri (5.7%), British Petroleum (5.3%), Bayer (4.2%), and Total (3.4%). About half of the advertisements came from companies with their headquarters in Germany (20.7%), the United Kingdom (16.1%), and the United States (13.3%). Most of the advertisements were associated with products/services belonging to one of the following industries: electricity/oil/energy (23.3%), automobiles/airplanes/transportation (12.5%), metal works/machinery (9.5%), renewable technology (8.7%), and chemicals/plastics (5.1%).

Each advertisement was assessed in terms of its greenness using the typology developed by Banerjee et al. (1995), who defined advertising greenness as the extent to which the advertisement has an environmental focus. Specifically, three categories of advertising greenness are used for the purpose of this study: (a) *shallow*, that is, advertisements with an element of generality (e.g., environmentally-friendly); (b) *moderate*, that is, advertisements with a lack of focus on the environmental friendliness of the product/service, but touching upon specific general issues (e.g., recycling); and (c) *deep*, that is, advertisements centering on environmental issues and discussing them in great depth (e.g., waste minimization procedures) and/or mentioning unique/innovative environmental actions that were being implemented (e.g., new environmentally friendly technologies). Based on this typology, the percentage distribution of the advertisements collected was as follows: shallow (28.7%), moderate (29.4%), and deep (41.9%).

Content analysis was applied to evaluate the green advertisements selected, an observational method that offers an appraisal of advertising content in a scientific and generalizable fashion (Kolbe & Burnett 1991). This method has several advantages: (a) it is *systematic*, because the selection and analysis of issues is made on clearly defined rules; (b) it is *objective*, because it

minimizes the possibility of the findings to reflect the analyst's subjective predispositions; and (c) it is *quantitative*, because it measures the emphasis or omission on a given analytic category (Kassarjian 1977; Krippendorff 2004).³

The analysis employed a special coding protocol, which relied heavily on previous literature on the subject (e.g., Kangun, *et al.* 1991; Banerjee, *et al.* 1995; Wagner & Hansen 2002). It comprised 70 items falling into each of the four components of the conceptual framework, as follows: (a) *focal points*, incorporating product-orientation (6), process-orientation (6), image-orientation (6), and environmental facts (5); (b) *evaluation areas*, capturing claim specificity (2), claim emphasis (2), claim substantiveness (4), and claim validity (4); (c) *leverage aspects*, covering rational (7), emotional (7), and moral (6) execution points; and (d) *driving forces*, including issues related to the planet (6), animals (3), plants (3), and human beings (3). To provide a common frame of reference for coding, a special coding manual was prepared which included operational definitions, explanations, and examples for each item contained in the coding protocol (Kolbe & Burnett 1991) (see **Appendix B** for definitions and examples of all constructs employed).

The coding process was carried out by two coders, who had a similar educational level, experiential background, and familiarity with the subject. They worked independently of each other to code the advertisements collected. Both underwent rigorous training, aiming at clearly understanding the purpose/objectives of the coding task, explaining the constructs and items employed, and resolving various issues and problems related to the exercise itself (Leonidou, *et al.* 2006). Prior to initiating the full-scale coding process, the coding protocol was tested using a small sample of advertisements, revealing no particular problems. Subsequently, each coder was supplied with the full set of advertisements and was asked to

transfer the information contained in each of them independently onto coding forms. Specifically, this information content was coded in the form of a yes (1) or no (0) dichotomous scale, indicating that the specific dimension of the environmental claim existed or not respectively in the advertisement examined.

An inter-coder reliability analysis conducted by the principal investigator based on Holsti's (1969) method, revealed a very high level of agreement between the coders, ranging from 91% to 100%, which is well above the acceptable levels depicted in the literature (Kassarjian 1977). Disagreements in the code assigned for a specific dimension of an advertisement by the two coders were resolved based on the following procedure: Firstly, coders were asked separately by the principal investigator to provide justification and further explanation for any different codes assigned by each of them to a specific dimension of the environmental claim. Then, the two coders were invited to a common meeting with the principal investigator, where each coding disagreement was carefully discussed and thoroughly examined in order to reach a commonly agreeable code. However, in some instances, where agreement could not be reached, the opinion of an expert in the field (who acted as an independent judge) was sought to arrive at a final definite code. All finalized codes were subsequently entered for statistical analysis.

6. Study findings

This section presents the findings of the study, with regard to each of the four sets of hypotheses.⁴ The *chi-squared* test is employed to check for the existence of differences among the three levels of greenness for each element of environmental claim, while identification of the direction and significance of differences between pairs of advertising greenness levels is based on *Scheffe's post-hoc* method of multiple contrasts (Marascuilo

1971; Argesti 1990). Notably, these tests have also been successfully used in previous advertising research (e.g., Leonidou, *et al.* 2006; Leonidou & Leonidou 2009), where comparisons between groups of variables measured with categorical data were made.

6.1. Focal points of environmental claims and advertising greenness (H_1)

With regard to focal points, the emphasis of the advertisements examined was primarily on *product-oriented* claims, that is, claims centering on the environmental properties of the product (see **Table 1**). ‘Low emission/no emission’ is the most commonly cited environmental point (reported in 16.7% of the advertisements) and is more prevalent in the greener advertisements ($\chi^2 = 16.45, p = .000$). ‘Low energy consumption’ and ‘recyclable products’ were two other claims in this category, reported by 7.8% of the advertisements examined. However, although both of these claims were used more with an increase in the advertising greenness, differences between the shades of green were not statistically significant. The use of ‘renewable/alternative/abundant resources’ was another product-oriented claim, which was reported in 5.0% of the advertisements. This particular claim was used more extensively in deep green advertisements ($\chi^2 = 6.35, p = .042$). Many other product-related claims were also mentioned, albeit less frequently, showing a growing presence overall in greener advertisements.

Place Table 1 Here

Process-oriented claims (i.e., environmental points related to the manufacturing process) were ranked second in terms of usage frequency. Here, the focus was mainly on ‘factory with low emission’ and ‘low energy consumption factory,’ which were each reported in 6.8% of the advertisements. A case in point is that of ESSO: “We’re all for reducing emissions”, referring to their new emission-efficient refineries. Again, the pattern was for these environmental

claims to become more evident with the increase in advertising greenness ($\chi^2 = 20.41, p = .000$ and $\chi^2 = 5.01, p = .082$ respectively). However, three other less frequently used claims in this category (i.e., namely 'non-polluting/reducing pollution', 'use of natural resources/energy', and 'use of alternative sources of energy') did not show a clear presence in advertisements that were greener.

Claims aiming to enhance the firm's *image* as sensitive to ecological matters were less extensively used, with the emphasis mainly on 'preserving the ecosystem' (3.1%), 'preserving natural resources' (2.9%), 'reducing greenhouse effect' (2.1%), 'preserving wetlands' (1.8%), and 'using alternative renewable energy' (1.8%). Although these image-oriented claims were used with increasing frequency as the level of advertising greenness became deeper, only in the case of 'preserving natural resources' ($\chi^2 = 8.61, p = .014$) and 'using alternative renewable energy' ($\chi^2 = 6.24, p = .044$) were statistically significant variations among the three categories of advertisements observed.

The final set of claims, namely those referring to a specific *environmental fact*, was the least employed. Some of the green-related facts cited referred to an 'increase in global warming levels' (3.4%), an 'increase in carbon dioxide levels/acid rain' (1.3%), and a 'reduction in fresh/drinking water levels' (1.0%). For example, an advertisement by General Electric stressed that "over 1 billion people live without easy access to clean, fresh water". Notably, these claims were only found in deep green advertisements, in strong support of our hypothesis. This stresses the importance of providing factual information in green advertisements to attract the attention of industrial buyers.

6.2. Evaluation areas of environmental claims and advertising greenness (H_2)

The evaluation of environmental claims covered four major dimensions, namely their degree of specificity, emphasis, substantiveness, and validity (see **Table 2**). In terms of the *specificity* of claims, most of the advertisements (i.e., 60.1%) made ‘specific’ claims about environmental matters (e.g., reduction of factory emissions by a certain percentage, decrease in noise pollution due to lower decibels produced by engines, percentage increase in recycling activities), as opposed to 39.9% which used a rather ‘vague’ approach (e.g., “we are environmentally friendly”, “preserving every little piece of the earth”, “now we are greener than ever”). Our findings indicate that the deeper the advertising greenness, the more specific the claim employed ($\chi^2 = 148.81, p = .000$).

Place Table 2 Here

Although the advertisements examined were more or less equally divided between those ‘strongly’ emphasizing the environmental claim, and those adopting a ‘weak’ *emphasis*, the former were of a deeper green nature ($\chi^2 = 133.89, p = .000$), as opposed to the latter which were associated with shallow greenness ($\chi^2 = 133.89, p = .000$). A case in point was the advertisement by Hyundai in which the emphasis was on advancement and innovation, while at the same time some, albeit shallow, environmental information was provided (i.e., “we expect to be at the cutting-edge of tomorrow’s new product development guided by a renewed sense of commitment to improving our living environment”).

With regard to substantiveness, slightly more than half (52.5%) of the advertisements made ‘substantive’ claims about the environment (e.g., “cutting fuel consumption by a certain percentage”, “using energy efficient systems in production”, “recycling of raw materials”, and “production using biodegradable ingredients”), while only 7.8% made ‘associative’ claims (e.g., “Work for the world. Care for the community”, “watching over your health”, “the threat

of global warming is on the rise”). The coexistence of substantive and associative environmental claims was identified in 14.6% of the advertisements. As hypothesized, substantive claims were more evident in advertisements of deep greenness ($\chi^2 = 29.29$, $p = .000$), although surprisingly this was also true with regard to associative claims.

Finally, in evaluating the *validity* of claims, 56.7% of the advertisements were found to be ‘acceptable’ (i.e., not making a misleading/deceptive statement), 31.6% were ‘ambiguous’ (i.e., containing a phrase/statement too broad to have a meaning), 7.8% were ‘omissive’ (i.e., omitting to incorporate important information to evaluate the claim’s truthfulness or reasonableness), while another 3.9% contained something ‘false’. A good example of an acceptable claim is that of Toyota emphasizing that their “Synergy Drive technology cuts fuel consumption by almost 45%, compared to a conventional petrol engine, and its emissions are 80% below European standards.” As expected, acceptable claims were more prevalent among deep green advertisements ($\chi^2 = 164.55$, $p = .000$), as opposed to ambiguous, omissive or false claims that were mainly employed in more shallow green advertisements.

6.3 Leverage aspects of environmental claims and advertising greenness (H₃)

In the majority of the advertisements, the *leverage* aspects of green advertising were of a *rational* nature. The emphasis was placed primarily on ‘information’ (e.g., emissions reduction figures, percentage of recyclable materials used, removal of product ingredients harmful to the environment) about the eco-friendly activities of the firm advertised (99.0% of the advertisements) (see **Table 3**). In fact, this type of rational appeal was evident across all three levels of advertising greenness. It was closely followed by the ‘benefits’ (91.6%) derived from the adoption of environmental practices, with this being more prevalent in deeper green advertisements ($\chi^2 = 23.83$, $p = .000$). Other rational execution styles used in the

advertisements were those stressing the ‘efficiency’ (35.8%), ‘quality’ (18.0%), and ‘features’ (3.7%) of the green advertiser’s products. In all three cases, their use was more extensive with the increase of advertising greenness.

Place Table 3 Here

Emotional leverage points refer to an execution style directed mainly at psychological aspects of customer needs. Providing ‘pleasure’ (e.g., “SCA always goes the extra step to satisfy the needs of customers”) was the most common emotional point employed (18.3%), with ‘pride’ (e.g., “feel proud”, “this was a joint achievement”) in second place (11.0%). Both execution styles were used more extensively in deeper green advertisements ($\chi^2 = 25.78, p = .000$ and $\chi^2 = 22.72, p = .000$ respectively). Other emotional execution styles employed, albeit to a much lesser extent, were ‘warmth’ (3.4%), ‘fear’ (3.1%), ‘joy’ (2.1%), and ‘guilt’ (2.1%). Again, these were used more intensively with the increase of advertising greenness, although in some cases (i.e., ‘warmth’ and ‘fear’) the differences between the three categories of advertisements were not statistically significant.

The final set of leverage points refers to a *moral-related* execution style. Analytically, a fifth (19.8%) of the advertisements raised ‘morality’ issues in the message they conveyed, with this being more prevalent in deep green advertisements ($\chi^2 = 36.34, p = .000$). For example, Bayer came out with the following advertisement: “In June 1992 representatives of 153 states and the European Community signed a declaration at the Earth Summit in Rio de Janeiro. Bayer will play its part in meeting the Rio Objectives.” Another 10.4% of the advertisements focused on ‘ethicality’ matters, such as following appropriate accounting principles, meeting necessary environmental regulations, and assuming responsibility for actions. Their use increased with advertising greenness ($\chi^2 = 25.03, p = .000$). Points related to ‘rightness’ were

the least frequently employed (2.6%) and followed the same pattern in terms of use, as in the case of the previous two execution styles ($\chi^2 = 9.06, p = .011$). For example, General Electric came out with the following advertisement: “Albania is developing. Per Simonsson, a member of General Electric Hydro, is just one of the many people who want to help it move in the right way.”

6.4 Driving forces of environmental claims and advertising greenness (H₄)

The forces behind the claims of environmental advertisements are derived from four major categories, the most frequently employed being the *preservation of the planet* (see **Table 4**). Here, the emphasis was on issues pertaining to the atmosphere (found in 26.4% of the advertisements), such as ozone layer protection, carbon emissions reduction, and reduction of noise. These claims were more evident in the deep green category ($\chi^2 = 31.60, p = .000$). ‘Climatic changes’ was the second most frequently cited issue in this category (reported in 6.8% of the advertisements). Again, this was more evident as the level of advertising greenness increased ($\chi^2 = 15.14, p = .001$). This is very vividly shown in an advertisement by Kyocera showing a melting iceberg and stating: “The threat of global warming is on the rise. So we’re looking to the sun for practical solutions.” Planet-related issues associated with ‘river/lake water’ (e.g., rising water levels) and ‘soil/land (e.g., agricultural pollution and efficiency) were identified in 6.5% and 2.1% of the advertisements respectively. In support of our hypothesis, these issues were more frequently traced to deep green advertisements.

Place Table 4 Here

Animal protection provided the second most popular driving force behind environmental claims. Here, the focus was mainly on ‘animal health’ (5.2%) such as BASF’s advertisement

emphasizing the development of “innovative products which protect crops from disease without harming other plants and animals.” The claim associated with ‘reduction in population size/extinction’ (1.6%) was employed to a lesser extent. A representative example of this type of claim was the advertisement by Shell, which stressed the idea to “protect endangered species, or become one.” In both cases, the presence of these driving forces increased with deeper green advertisements ($\chi^2 = 4.73, p = .095$ and $\chi^2 = 4.85, p = .089$). References were slightly less frequent to plants than to animals, and centered mainly on the need for ‘conservation’ (4.6% of the advertisements), which again was more evident when the greenness of the advertisement was deeper ($\chi^2 = 4.76, p = .090$). A case in point was the advertisement by Bayer, which stated: “Plants need protection. It is our responsibility to protect the environment also.” The ‘extinction/destruction’ of certain plant species was mentioned on a less frequent basis (1.0% of the advertisements) and only appeared in deep green advertisements. A good example here was Samsung’s advertisement for its super tanker that prevented oil spills, helping in this way to save “the few blue whales remaining alive in the world” from extinction.

The harmful effects of environmental problems on *human beings* rarely appeared in the advertisements examined. The most common issue tackled here concerned ‘health-related matters’ (2.6%) which was also stressed more in advertisements with greater advertising greenness ($\chi^2 = 10.51, p = .005$). For example, an advertisement by OPEL, the automotive manufacturer, highlighted that “In today’s world, children don’t just hear about environmental dangers – they feel them too. And they suffer the most – even from the urban dirt and dust that can find their way through the ventilation system into a car’s interior.” Surprisingly, another human-related driving force mentioned less frequently (1.3% of the advertisements),

namely 'life improvement', showed a reverse pattern, appearing more in shallow green advertisements.

7. Conclusions, implications, and future directions

A central conclusion of this study is that focal points, evaluation areas, leverage aspects, and driving forces of environmental claims made by multinational firms selling industrial goods do indeed differ in accordance with the degree of advertising greenness.⁵ Specifically, in accord with legitimacy theory, it seems that the deeper the greenness of the advertisement, the greater the use of focal points of any type, the more specific, strong, substantive, and acceptable the claims made, the higher the employment of rational, emotional, and moral points to leverage environmental matters and the more the focus on ecological issues relating to the planet and its flora, fauna, and human entities. This implies that firms that adopt deeply green advertisements convey green messages in a detailed, authentic, and responsible way. In contrast, firms using shallow green advertisements adopt a superficial, blurred, and sometimes deceptive coverage of environmental matters.

With regard to *focal points* demonstrating the eco-friendly nature of the company's product, manufacturing process, image, and facts help to improve the greenness of its advertisements. Hence, international firms are encouraged to make these issues as visible as possible in their industrial advertisements, as well as to clearly state the environmental benefits accruing from each of them separately. This is vital in positively influencing industrial purchasing behavior, since, apart from traditional factors (e.g., quality, cost, and service), it also takes environmentally-related attributes seriously into consideration (Hoejmoose, *et al.* 2012). In addition, the strong emphasis placed on product-oriented environmental issues (e.g., low energy consumption, recyclability, pollution reduction) in the advertisements examined

implies that in business-to-business communications suppliers are mostly concerned with explaining the direct benefit that their products provide for the buyer, rather than how these are produced.

The results pertaining to *evaluation areas* stress the need for multinational firms developing and testing green advertisements to avoid the use of inaccurate, incomplete, or misleading claims which act in an unethical and sometimes illegal way (Newell, *et al.* 1998). This will reduce suspicion and confusion among their foreign industrial buyers and lead to such positive effects as repeat purchasing, improved corporate reputation, and enhanced performance. However, drawing from the green consumer literature, it is essential to stress that offering specific, informative, substantive, and unambiguous green advertising claims is a necessary, but not a sufficient, inducement to make the buyer purchase the advertiser's product (Davis 1983). Additional assurances are needed that the product meets expectations in all of its primary functions, such as performance, economy of use, and ease of maintenance.

Our study also revealed that *leverage aspects* are crucial in emphasizing the environmental orientation of the industrial firm and its products, to make the message sent through driving forces more concrete. In fact, all three leverage aspects (i.e., rational, emotional, and moral) were more frequent in the greener advertisements, demonstrating their instrumental role in better conveying the message to the target audience. The overwhelming use of rational (as opposed to emotional and moral) appeals observed in the advertisements examined underscores the importance of primarily connecting environmental claims with the benefits accrued to the industrial buyer, such as cost efficiency, quality improvement, and service dependability. Thus, more extensive communication of factual information concerning the eco-friendly practices of the supplying firm is necessary (Chan & Lau 2004).

The findings relating to *driving forces* imply that industrial advertisers need to better educate current and potential buyers in international markets through their green advertisements, in order to encourage more informed decisions when assessing the environmental attributes and/or benefits of the products purchased (Newell, *et al.* 1998). Showing how their eco-friendly practices and products can help to protect the natural environment, as well as preserve any living entity on it, is essential to direct the interest of the buying center unit (and even top management) in industrial organizations toward ecological matters. However, the excessive emphasis placed on issues related to the planet (especially on maintaining a clean atmosphere), rather than living entities, is justifiable by the fact that advertisers are targeting industrial buyers (who have to control pollution of the natural environment), as opposed to end-users (who are more interested in life-related issues).

7.1 Managerial implications

Given that environmental marketing strategy in general, and green advertising strategy in particular, can play an essential role in the multinational firm's overall strategy in international markets (Menon & Menon 1999), it is important to embark on proactive deep green communication strategies, rather than reacting in a shallow way to crisis situations related to ecological issues. This is particularly true in light of repeated accusations of misleading environmental claims and the growing negative perceptions by various stakeholder groups. In doing so, it is crucial to adopt an integrative approach that would successfully link together focal points, evaluation areas, leverage aspects, and driving forces of the firm's advertising campaign relating to environmental claims. The fact that the international business environment is highly volatile (involving constant developments with

regard to ecological issues) implies that eco-friendly advertising strategies should not remain static, but take these developments into account.

In an era characterized by increasing competitive intensity, growing buyer sophistication, and accelerating globalization, multinational firms producing industrial goods can enhance their positioning in the marketplace by properly conceiving and executing sound green communication campaigns. Specifically, by using advertising messages that incorporate the positive aspects related to the deep green advertisements identified in this study, these firms can justify and preserve their legitimacy with various stakeholders, which is vital for operating smoothly in the international marketplace. Enhancing the deepness of their environmental advertisements that contain detailed, unbiased, and supporting evidence will also contribute toward greater clarity and validity of the message conveyed and allow industrial buyers to make informed decisions safely about the environmental qualities of supplying companies and their products. It would also facilitate eliminating feelings of skepticism about environmental claims and building greater customer trust, phenomena that have surfaced as a result of vague and misleading green advertising claims.

Through the execution of sound green advertising strategies, multinational firms should clearly explain the environmental benefits derived from their business practices, indicate how these benefits are superior to those offered by their competitors, and provide specific, detailed, and accurate information to substantiate their claims. Most importantly, it is essential to actually deliver what is promised and/or mentioned in their advertising messages, because members of the society may react negatively (e.g., cancelling purchases, spreading negative word-of-mouth information, imposing financial penalties) when the advertiser overestimates their benefits (Newell, *et al.* 1998). On the other hand, acting in an environmentally

responsible manner and conveying this in their advertising campaigns will help these firms to achieve, *inter alia*, an enhanced corporate image in foreign markets, the cultivation of alliances with public policymakers and other pressure groups, support for new product development efforts, and customer retention and attraction.

7.2 Future research directions

The use of content analysis as the principal method of data analysis in our study neither allows the measurement of the importance of the environmental claims, nor examines whether these actually represent reality. This would involve complementing our content analysis results with primary research (combining survey and case study methods) that would directly address questions about the environmental practices of the advertiser, then verify this through data collected from secondary sources, and finally compare and contrast this information with the environmental claims made in advertisements. The use of qualitative research, taking the form of focus group discussions with various stakeholders (e.g., industrial buyers, governmental officials, trade associations) will help to achieve more insightful information on the subject. Since international advertising agencies guide multinational firms about how their green behavior should be conveyed, more light should be shed on this guiding role through the execution of in-depth interviews with creative and media planning directors.

Although the study attempted to link advertising greenness with environmental claims, the content analysis method adopted did not allow an examination of how these claims are linked to either the communication effectiveness (e.g., message comprehension) or sales effectiveness (e.g., purchase intention) of green advertisements. This would involve carrying out a survey among industrial buyers in different countries who are exposed to advertisements of varying levels of greenness to assess their effectiveness. Such research would also directly investigate

industrial buyers' evaluation of the specificity, emphasis, substantiveness, and validity of environmental claims by their foreign suppliers, and help to build a system that could be used by advertisers to assess the veracity of these claims, prior to launching their green advertising campaigns. This investigation could also be extended to cover the views of other stakeholder groups, such as regulatory bodies, industry associations, and mass media.

More research is also necessary with regard to organizational and managerial characteristics of the industrial advertiser's organization. The role of organizational culture in shaping environmental claims needs particular attention, since 'green values' have often been reported as responsible for crafting the firm's eco-friendly business strategy (Chan, *et al.* 2012). It is also important to investigate how the foreign industrial seller's governance structure (e.g., existence of green specialists on the board of directors), prior environmental performance (e.g., receipt of environmental awards and recognition), and leadership characteristics (e.g., personal sensitivity to ecological issues) influence the nature of environmental claims. The way the firm's green advertising efforts are integrated with other elements of the promotional mix (i.e., public relations, personal selling, and direct marketing) and marketing strategy (i.e., product, price, and distribution) is another potentially fertile area of research. In addition, it would be interesting to establish a link between green environmental advertising claims with market (e.g., customer satisfaction) and financial (e.g., profits) performance dimensions of the multinational firm.

Some light also needs to be shed on how the profile characteristics (e.g., size, industry group, technology status) of industrial buyers form their perceptions of the environmental claims made in green advertisements. For instance, the type of buyer's buying situation (e.g., straight re-buy, modified re-buy, new task), the nature of its buying center (e.g., size, composition,

experience), and the type of organizational behavior (e.g., risk attitudes, value systems, organizational culture) may lead to a different interpretation of the environmental claims made by their foreign suppliers. In this context, the environmental behavior (whether sensitive or indifferent to green issues) of the industrial buyer also needs exploration, as this will determine the extent to which environmental claims are taken seriously into consideration when making purchasing decisions (especially in comparison with other attributes, such as price, quality, and service).

Future research could examine the role of the industrial seller's international exposure (e.g., years of experience, foreign sales intensity, cultural distance from foreign markets) in developing environmental claims for international advertising campaigns. It would also be useful to examine whether environmental claims are adapted across countries, due to differences in such factors as regulatory frameworks, environmental public concerns, and level of market development. The role of various facets of the firm's international business involvement, such as global expansion approach, foreign market spreading, and foreign market entry, in making environmental claims in advertisements also warrants attention. Finally, it would be interesting to extend our analysis to examine environmental claims made through different advertising media (e.g., television, radio, newspapers) and/or communication tools (e.g., web sites, annual reports, press releases) and examine how these are integrated within the firm's overall green communication effort.

Notes

1. The MECCAS model states that an advertising strategy comprises four interconnected dimensions, namely message elements, buyer benefits, leverage points, and driving forces (Wagner & Hansen 2002). The specific items operationalizing each of these dimensions were derived after an exhaustive review of the extant literature on environmental advertising claims (with the specific literature sources used shown in **Appendix B**).
2. Independent statements refer to statements made by various independent bodies (e.g., trade associations, environmental agencies, governmental organizations) that appear in a specific green advertisement and are particularly related to 'environmental facts'. However, due to practical difficulties, the truthfulness of these statements was not able to be verified through the cross-checking of information obtained direct from these bodies and/or the organizations advertised.
3. Content analysis is an established business research method, which has been used repeatedly in numerous studies focusing on advertising in general (e.g., Abernathy & Franke 1996; Leonidou, *et al.* 2006; Leonidou & Leonidou 2009) and green advertising in particular (e.g., Iyer & Banerjee 1993; Easterling, *et al.* 1996; Gurbuz, *et al.* 2012).
4. Our study follows a rather 'unorthodox' (but at the same time insightful) way of testing the research hypotheses, in the sense that the data used were collected from a content analysis of green advertisements, rather than a survey method, which is most commonly employed. Notably, content analysis data for hypothesis testing has been used successfully by prior research on green advertising (e.g., Carslon, *et al.* 1993; Banerjee, *et al.* 1995; Wagner & Hansen 2002).
5. Since our study is centered on the field of advertising, we have had to confine our review to articles focusing on environmental claims made specifically in green advertisements. However, research on environmental claims is much wider, also examined from other perspectives, such as marketing (e.g., packaging (Polonsky, *et al.* 1998)), business (e.g., accounting (Milne & Patten 2002)), and non-business (e.g., political/legal (Bernal 2011)). To our knowledge, none of these studies embarked on verifying the truthfulness of these claims by physically checking what is happening inside the specific organizations with regard to their actual eco-friendly practices. This is mainly due to the fact that it is a very time-consuming, costly, and cumbersome task, which requires the close collaboration and assistance of their management teams, which is rarely available. However, such a task could be undertaken by special organizations, such as environmental agencies, government bodies, and trade associations, with an interest in the subject, because of: (a) possessing the required amount of financial, human, technical, and other resources; (b) having access to the management and facilities of the corporations whose products are advertised; and (c) having the legal empowerment and/or authority to carry out such an investigation within the advertiser's organization.

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Table 1
Focal points of environmental claims and advertising greenness

Focal points	Total (n= 383) %	Degree of advertising greenness			χ^2	p- value	Scheffé's test ($p=.10$)
		(I)	(II)	(III)			
		Shallow (n ₁ = 118) %	Moderate (n ₂ =109) %	Deep (n ₃ = 156) %			
<u>Product orientation</u>							
Low emission/no emission	16.7	5.9	17.4	24.4	16.45	.000	II>I, III>I
Low energy consumption	7.8	5.9	6.4	10.3	2.16	.340	
Recyclable products	7.8	5.9	8.3	9.0	0.90	.638	
Non-polluting/reducing pollution	6.9	2.5	6.4	10.3	6.35	.042	III>I
Renewable/alternative/abundant resources	5.0	-	6.4	7.7	9.12	.010	II>I, III>I
Other	25.6	23.7	30.3	23.7	1.76	.415	
<u>Process orientation</u>							
Factory with low emission	6.8	-	4.6	13.5	20.41	.000	II>I, III>I, III>II
Low energy consumption factory	6.8	4.2	4.6	10.3	5.01	.082	III>I, III>II
Non-polluting/reducing pollution	3.1	.8	3.2	5.5	4.05	.132	
Use of natural resources/energy	3.1	2.5	1.9	5.5	2.91	.234	
Use of alternative sources of energy	2.6	.8	2.8	3.8	2.39	.303	
Other	8.6	5.1	7.3	12.2	4.61	.100	III>I
<u>Image orientation</u>							
Preserving the ecosystem	3.1	1.7	2.8	4.5	1.80	.407	
Preserving natural resources	2.9	-	1.8	5.8	8.61	.014	III>I
Reducing greenhouse effect	2.1	1.9	1.8	2.5	0.17	.917	
Preserving wetlands	1.8	-	1.8	3.2	3.85	.146	
Using alternative renewable energy	1.8	-	.9	3.8	6.24	.044	III>I
Other	3.4	2.5	2.8	4.5	0.97	.617	
<u>Environmental facts</u>							
Increase in global warming levels	3.4	-	-	8.3	19.58	.000	III>I, III>II
Increase in carbon dioxide levels/Acid rain	1.3	-	-	3.2	7.37	.025	III>I, III>II
Reduction in fresh/drinking water levels	1.0	-	-	2.6	5.88	.053	III>I, III>II
Other	6.2	-	1.8	14.1	27.63	.000	III>I, III>II

Table 2
Evaluation areas of environmental claims and advertising greenness

Evaluation areas	Total (n= 383) %	Degree of advertising greenness			χ^2	p- value	Scheffé's test (p=.10)
		(I) Shallow (n ₁ = 118) %	(II) Moderate (n ₂ =109) %	(III) Deep (n ₃ = 156) %			
<u>Claim specificity</u>							
Specific	60.1	19.5	57.8	92.3	148.81	.000	II>I, III>I, III>II
Vague	39.9	80.5	42.2	7.7	148.81	.000	I>II, I>III, II>III
<u>Claim emphasis</u>							
Strong	53.8	16.9	46.8	86.5	133.89	.000	II>I, III>I, III>II
Weak	46.2	83.1	53.2	13.5	133.89	.000	I>II, I>III, II>III
<u>Claim substantiveness</u>							
Substantive	52.5	42.4	50.4	61.5	29.29	.000	II>I, III>I, III>II
Associative	7.8	4.2	4.6	12.8	9.08	.000	III>I, III>II
Substantive and associative	14.6	4.2	4.6	29.5	46.60	.000	III>I, III>II
None	25.1	49.2	16.5	12.8	53.15	.000	I>II, I>III
<u>Claim validity</u>							
Acceptable	56.7	13.6	54.1	91.0	164.55	.000	II>I, III>I, III>II
Ambiguous	31.6	66.1	31.2	5.8	113.17	.000	I>II, I>III, II>III
Omissive	7.8	14.4	10.1	1.3	17.11	.000	I>III, II>III
False	3.9	5.9	4.6	1.9	4.89	.090	I>III

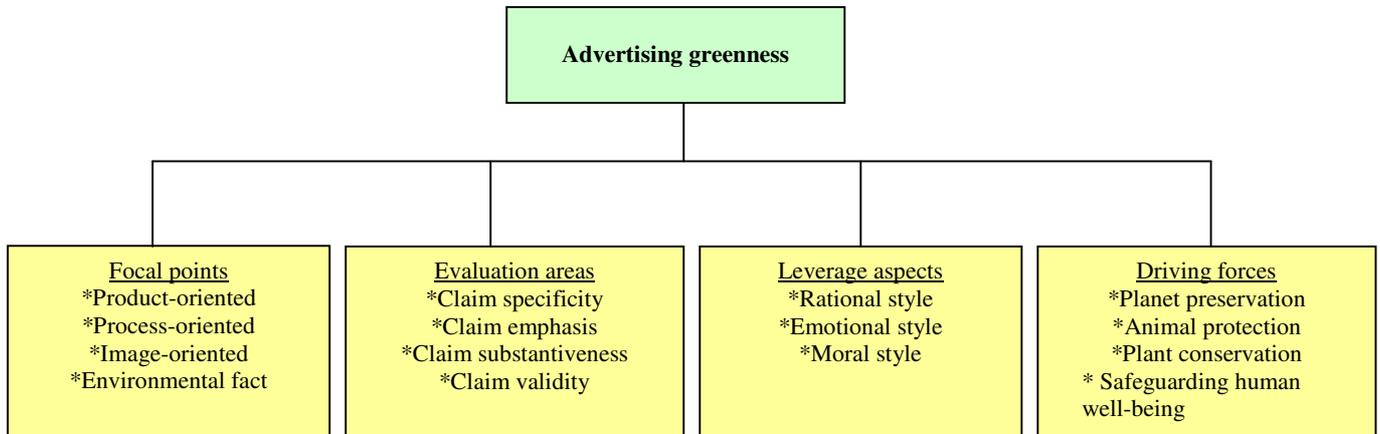
Table 3
Leverage aspects of environmental claims and advertising greenness

Leverage aspects	Total (n= 383) %	Degree of advertising greenness			χ^2	p- value	Scheffé's Test (p=.10)
		(I) Shallow (n ₁ = 118) %	(II) Moderate (n ₂ =109) %	(III) Deep (n ₃ = 156) %			
<u>Rational style</u>							
Information	99.0	98.3	100.0	98.7	1.72	.423	
Benefits	91.6	81.4	95.5	97.2	23.83	.000	II>I, III>I
Efficiency	35.8	28.8	33.0	42.9	6.34	.042	III>I, III>II
Quality	18.0	13.6	15.6	23.1	4.72	.094	III>I
Features	3.7	1.7	3.7	5.1	2.25	.325	
Other	13.0	11.8	11.1	15.4	1.75	.417	
<u>Emotional style</u>							
Pleasure	18.3	7.6	12.8	30.1	25.78	.000	III>I, III>II
Pride	11.0	2.5	7.3	19.9	22.72	.000	II>I, III>I, III>II
Warmth	3.4	2.5	2.8	4.5	0.97	.617	
Fear	3.1	.8	.9	6.4	9.32	.009	III>I, III>II
Joy	2.1	2.5	1.8	1.9	0.17	.917	
Guilt	2.1	-	.9	4.5	7.64	.022	III>I, III>I
Other	9.7	2.5	11.0	14.1	10.61	.005	II>I, III>I
<u>Moral style</u>							
Morality	19.8	8.5	11.0	34.6	36.34	.000	III>I, III>II
Ethicality	10.4	4.2	3.7	19.9	25.03	.000	III>I, III>II
Rightness	2.3	-	.9	5.1	9.06	.011	III>I, III>II

Table 4
Driving forces of environmental claims and advertising greenness

Driving forces	Total (n= 383) %	Degree of advertising greenness			χ^2	p-value	Scheffé's test (p=.10)
		(I) Shallow (n ₁ = 118) %	(II) Moderate (n ₂ =109) %	(III) Deep (n ₃ = 156) %			
<u>Planet preservation</u>							
Atmosphere	26.4	11.9	21.1	41.0	31.60	.000	II>I, III>I, III>II
Climatic changes	6.8	2.5	2.8	12.8	15.14	.001	III>I, III>II
River/lake water	6.5	2.5	1.8	12.8	17.13	.000	III>I, III>II
Soil/land	2.1	2.5	-	3.2	3.40	.183	
Other	7.0	4.2	12.8	5.3	5.44	.066	II>I, II>III
<u>Animal protection</u>							
Health	5.2	1.7	4.6	8.3	4.73	.095	III>I, III>II
Population reduction/extinction	1.6	.8	-	3.2	4.85	.089	III>II
Other	1.0	.8	-	1.9	2.36	.307	
<u>Plant conservation</u>							
Conservation	4.6	.8	3.7	7.7	4.76	.090	III>I
Extinction/destruction	1.0	-	-	2.6	5.88	.053	III>I, III>II
Other	.5	-	.9	.6	0.99	.610	
<u>Safeguarding human well-being</u>							
Health-related matters	2.6	-	.9	5.8	10.51	.005	III>I, III>II
Life improvement	1.3	2.5	1.8	-	3.70	.157	
Other	1.8	.8	.9	3.2	2.79	.248	

Fig. 1
The conceptual framework of the study



Appendix A

Examples of different degrees of advertising greenness

<i>A. Shallow green advertisements</i>	
Komatsu (1989 ad)	“...Komatsu technology is designed to meet local needs and global concerns for the environment. And build better communities without sacrificing the quality of life...”
BASF (1991 ad)	“From lips to laps. There are many areas of the modern world where BASF hasn’t had an influence. From the colour in lipsticks to the strong lightweight composites used in constructing a Formula One car. Whether the end result is destined for the catwalk or the racetrack, the aim remains the same: to find new and better solutions. From exciting perfumes to environmentally-friendly paints. BASF research and development teams create new products and ideas for today’s world – and tomorrow’s. With safety, the environment and energy saving issues at the forefront of our priorities. At BASF, we work in partnership with innovative, forward-thinking companies, developing the products that improve your quality of life.”
Total (2005 ad)	“Always keeping energy in reserve and cultivating other solutions. Today more than ever before, mobility rules the day. Which is why the discovery of new oil resources is a key objective for Total. But it’s not the only one. We are also developing innovative, more effective, ever more environmentally-friendly fuels. To continue on the road to the future.”
<i>B. Moderate green advertisements</i>	
Kawasaki (1999 ad)	“Kawasaki technology has been unlocking new doors and improving lives for over one hundred years. We make big buildings stronger, tunnels deeper and bridges longer. We protect the environment with new recycling and energy generation systems. We build advanced trains, planes and ships. We even invent brand-new ways to have fun. And we never stop looking for new doors to open.”
Degussa (1997 ad)	“Putting road safety in a better light. In today’s world, wherever there is traffic, whether on land, sea, or in the air, signal lights play a vital role in safety. The demands places on the plastics used to make them are enormous: they must be exceptionally transparent, produce optimal luminosity and at the same time, be capable of being formed into practically any shape. But, for the scientists at Degussa, well aware of the huge potential demand for these materials, this was just not enough. For them, they also had to be a shining example of environmental protection. This is why every new rear light made from Degalan is almost 100% recyclable. And can be reconverted into the original material – in granulate form – with hardly any loss of quality or volume. Thus a signal is being sent for the environment and not only for road traffic safety. For Degussa, it all began with gold and silver. Today, we shine in many more fields.”
ExxonMobi l (2006 ad)	“Why not take waste that would end up as landfills and recycle them so they end up as roads. Together with one of our recycling partners, we’ve taken over 160,000 tons of wastes from our operations and recycled them into roadbed materials. It’s another example of how we’re maximizing energy output while minimizing environmental impact. Making good use of something others thought had no use. That’s travelling in the right direction.”
<i>C. Deep green advertisements</i>	
Minolta (1992 ad)	“Quality of life is as important to us as the quality of our products. We like to think we do our best to help take care of the environment. Our copiers, for example, are specially designed to take recycled paper with no loss in quality. Our organic photoconductor drum (OPC) is recyclable and non-toxic. Every toner must pass rigid in-house safety tests. Even toner bottles are recyclable. And Minolta seeks new ways to eliminate CFCs (chlorofluoro-carbons) from all manufacturing processes. But our copiers don’t just make a pretty picture for the environment. They also make it a soothing one. Just listen to new Minolta EP5425. Or maybe you can’t hear it.”
Bayer (2000 ad)	“My new car manages to use less fuel. It all comes down to good connections. Bayer experts have proven this with smart material combinations like the hybrid technology that fuses plastic with sheet steel to create stable components in the front of the car. The result is up to 40% weight reduction – and that makes for significantly lower fuel consumption. Bayer expertise also comes into play in the production of the eco-tire. The special blend of rubber used to make these tires cuts rolling resistance by up to a third, not only going easier on your purse, but also the environment.”
Airbus (2007 ad)	“Cleaner. The Airbus A380 rewrites the rulebook on emissions. Flying in an A380, you’re personally creating less CO ₂ than you would do driving the average family car. You’ll also be using less fuel, at around 2.9 litres per passenger per 100 kilometres. No other high-capacity aircraft flying today, or planned for tomorrow, can fly so many people such distances with so little environmental impact. When it comes to being cleaner, the A380 is the new aviation benchmark. Airbus A380. See the bigger picture.”

Appendix B

Constructs, definitions, and examples

Construct	Definition	Examples
A. Advertising greenness (Source: Banerjee, et al. 1995)		
Shallow greenness	Environmental claims that are generic in nature.	“We are now greener.”
Moderate greenness	Environmental claims that do not address environmental issues related to the company/product in great depth, but mention some specific issues in detail.	“We protect the environment with new recycling and energy generation systems.”
Deep greenness	Environmental claims focusing solely on ecological issues that are discussed in depth or provide information on environmental behaviors that are not widely practiced.	“Over one billion people live without easy access to clean, fresh water. But thanks to Water Desalination from GE, salt water is being turned into usable water for areas that need it; be it for drinking, irrigation or industry. Already, we’re reclaiming over seven 7 billion liters of water a day.”
B. Focal points (Source: Carlson, et al. 1993)		
Product orientation	Environmental claims centering on the ecological attributes of a product.	“This is a biodegradable product”
Process orientation	Environmental claims focusing on an organization’s internal technologies, process innovations, production techniques, and/or disposal practices that provide environmental benefits.	“Our goods are produced using up to 30% recyclable materials and processed in our new and energy efficient manufacturing unit”
Image orientation	Environmental claims that link the company with an environmental problem or cause for which there is ample public interest and/or support.	“We are committed to saving our wildlife”
Environmental facts	Environmental claims involving an independent statement that describes an environmental issue/problem by providing factual information.	“The threat of global warming is on the rise”
C. Evaluation areas (Source: Davis 1993; Kangun, et al. 1991; Carlson, et al. 1996)		
Claim specificity	The degree of specificity of the environmental claim. <i>Specific claims</i> are the ones which are detailed, explicit, and have a clear meaning. <i>Vague claims</i> are the ones that are too broad to have a clear meaning.	<i>Specific:</i> “We use 10% less packaging and 100% recycled paperboard for this product”; <i>Vague:</i> “Our packaging is environmentally friendly.”
Claim emphasis	The degree of emphasis of environmental themes and attributes in the advertisement. <i>High emphasis claims</i> feature solely environmental corporate/environmental attributes or prioritize these as more important than other traditional category attributes (e.g., quality, effectiveness). <i>Low emphasis claims</i> focus on traditionally important corporate/product category attributes while mentioning environmental attributes (e.g., biodegradable, recyclable) as extras.	<i>Strong emphasis:</i> “Our product now has an improved environmental performance since we only use recycled materials. And it cleans great too!” <i>Weak emphasis:</i> “Our product cleans very well and smells great. It’s also good for the environment.”
Claim substantiveness	<i>Substantive claims</i> provide solid, tangible benefits/information about the company/product and reflect a purpose to maintain or enhance consumers’ perceptions of an organization as	<i>Substantive:</i> “Our products are not only biodegradable but come from sustainable sources too”;

	ecologically responsible. These claims help consumers understand why purchasing a specific product or from a particular company can be advantageous for the physical environment. <i>Associative claims</i> are those portraying environmental facts or communicating image-enhancing arguments in an effort to build a positive perception with stakeholders without referring to an advertiser's own products and practices. These claims are more intangible, refer to initiatives external to the company, such as supporting environmental causes, and make statements about the environment that have little or nothing to do with the advertiser.	<i>Associative</i> : "The orang-utans are in great danger so we all have to do our bit to protect their tropical forest habitat."
Claim validity	Claim validity refers to the degree of the claim's non-ambiguity. <i>Acceptable claims</i> are those that appear to contain enough environmental information that allows adequate evaluation without any interpretation problems. <i>Ambiguous claims</i> are those that appear to be broad or have no clear meaning. <i>Omissive claims</i> are those that omit details that are important in order to evaluate whether the claim is truthful or reasonable. <i>False claims</i> are those that are inaccurate or fabricated.	<i>Acceptable</i> : "Our product is 100% recycled and we use at least 20% recycled materials for our packaging"; <i>Ambiguous</i> : "Our product is green"; <i>Omissive</i> : "Our product is green as its CFC-free"; <i>False</i> : "Our new and improved unleaded fuel is environmentally friendly"
D. Leverage aspects (Source: Banerjee, et al. 1995; Grillo, et al. 2008; Wagner & Hansen 2002)		
Rational style	Environmental claims that contain rational points related to the company or product. These points include logical information about benefits, advantages, and attributes that help the target audience decide about the environmental qualities of the company/product.	"This is not only more efficient in terms of fuel consumption, but also more environmentally friendly in terms of CO ₂ emissions."
Emotional style	Environmental claims that contain emotional points such as fear, love, joy, guilt or pleasure in order to develop an emotional reaction about the company/product.	"There is no reason to feel guilty for driving anymore."
Moral style	Environmental claims that contain points concerning morality in terms of the wrongness or rightness of a situation, issue, or an action (i.e., using a company's products).	"Do the right thing when it comes to the environment."
E. Driving forces (Source: Banerjee, et al. 1995; Wagner & Hansen 2002)		
Planet preservation	Environmental claims that seek to promote issues related to the preservation of the planet's ability to sustain life in the future. This category deals with issues such as atmospheric pollution, the depletion of the planet's natural resources, soil erosion, solid waste treatment, and water/river contamination or accessibility.	"Our planet is at stake"
Animal protection	Environmental claims that seek to promote issues related to the protection and wellbeing of animal life (e.g., dolphins, bears, and elephants) and other micro organisms (e.g., worms, fish, and sea creatures). This category deals with issues such as animal health, maltreatment, population level, and behavior.	"A future is something that dolphins might not have"
Plant conservation	Environmental claims that seek to promote issues related to the protection and conservation of plants (i.e., flowers, plantations, forests, natural habitats). This category deals with issues such as forest sustainability, extinction of rare plant varieties, and plant diseases.	"Forests are wiped out at the shocking rate of 35.2 million acres a year"
Safeguarding human well-being	Environmental claims that seek to promote issues related to human health and well-being. This category deals with issues such as the consequences of emissions to humans, problems related to the production of excessive noise, concerns relating to the ability of future generations to live, worryment related to famine, issues related to human health, and difficulties of human access to clean water.	"Our product is made from natural ingredients that are not harmful to human health"