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"Greening" the marketing mix: do firms do it and does it pay off?

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Greening the marketing mix: Do firms do it, and does it pay off?

Abstract

Growing concern about the sustainability of the natural environment is rapidly transforming the competitive landscape and forcing companies to explore the costs and benefits of "greening" their marketing mix. We develop and test a theoretical model that predicts (1) the role of green marketing programs in influencing firm performance, (2) the impact of slack resources and top management risk aversion on the deployment of such programs, and (3) the conditioning effects that underpin these relationships. Our analyses show that green marketing programs are being implemented by firms, and we find evidence of significant performance payoffs. Specifically the results indicate that green product and distribution programs positively affect firms' product-market performance, while green pricing and promotion practices are directly positively related to firms' return on assets. In addition, industry-level environmental reputation moderates the links between green marketing program components and firms' product-market and financial performance. Finally, we find that slack resources and top management risk aversion are independently conducive to the adoption of green marketing programs—but operate as substitutes for each other.

Keywords: Green marketing, Firm performance, Stakeholder theory, Slack resources, Industry reputation, Risk aversion, Competitive intensity

"Green" issues have become increasingly important to corporate decision makers as firms face mounting public sensitivity, stricter regulation, and growing stakeholder pressures focused on preserving the natural environment (Banerjee et al. 2003; Hult 2011; Maignan and Ferrell 2004). Increasing numbers of customers have also begun shifting their preferences to more environmentally friendly[1] products and services (Kotler 2011; Luchs et al. 2010). Despite the resultant managerial interest, few empirical studies have examined sustainability issues in marketing strategy (Cronin et al. 2011). As a result, knowledge about green marketing practices remains limited for both managers and policy makers (Chabowski et al. 2011; Etzion 2007).

Two key gaps persist in existing knowledge. First, although there is much debate about the likely outcomes of environmentally friendly marketing approaches, surprisingly few empirical studies have examined their impact on firm performance. The few performance outcome studies undertaken to date have adopted widely differing approaches and been published in specialist journals. Thus, managers neither know whether "greening" their firms' marketing practices makes strategic and financial sense nor understand the contingencies that may affect the answer to these questions (Cronin et al. 2011). Second, even if more environmentally friendly marketing programs make sense, current understanding of how managers can best begin greening their firms' marketing efforts is far from comprehensive. The limited number of prior studies in this area have identified several external "triggers" (e.g., public concern, regulatory pressure) but relatively few internal factors (e.g., top management commitment) that are conducive to this process (e.g., Banerjee et al. 2003). We identify and empirically examine two new internal factors that have largely been overlooked: slack resources and top management risk aversion (Menguc et al. 2010; Miles and Covin 2000).

[1] We adopt the general and widely used term "environmentally friendly" to refer to any activity that is relatively less harmful or is even beneficial to the natural environment.

Our study addresses these knowledge gaps and makes two primary contributions. First, we examine the product-market and return-on-assets (ROA) performance effects of environmentally friendly product, pricing, distribution, and promotion programs. We find that greening marketing programs can deliver product-market and financial performance benefits. However, we show that these benefits may vary across different green marketing program components and identify the key role of the industry's environmental reputation in conditioning some of these relationships. Our results suggest that researchers need to allow for different levels of greenness in individual marketing program components and capture industry-level variables in theorizing and empirically studying green marketing. Our findings also have important implications for managers in terms of where and how they should expect to achieve payback benefits from investments in greening marketing programs.

Second, we provide evidence of the critical role of slack resources and top management risk aversion in the deployment of green marketing programs. In addition, we explore interaction effects and find that competitive intensity enhances the impact of slack resources on some components of green marketing programs. Our results also reveal that slack resources and top management risk aversion are substitutes in enabling green marketing programs. Although both factors may be potentially important in understanding how firms respond to environmental challenges (e.g., Menon and Menon 1997; Sharma 2000), neither has been the subject of prior empirical examination. Importantly, our findings suggest that managers wishing to green their firms' marketing efforts need to adopt different approaches depending on the availability of slack financial resources, the competitive intensity in the marketplace, and the level of risk aversion of their top managers.

We begin by briefly reviewing the sustainability literature relevant to green marketing

and use this to ground our conceptualization of green marketing programs. Next, we explain the theoretical foundation of our research model and develop hypotheses for the key relationships we identify. We then describe the research methods, present our hypothesis testing results, and discuss theoretical and practical implications. Finally, we consider limitations of our study and identify promising avenues for further research.

Prior research on sustainability

Scholarly attention to ethical, societal, and environmental issues in business dates back to the 1960s, but interest in such issues has grown exponentially in the past 20 years (for reviews, see Chabowski et al. 2011; Leonidou and Leonidou 2011). The evolutionary path in this research area has witnessed the integration of various theories (e.g., stakeholder theory, political economy paradigm, resource-based view, institutional theory) and the introduction of various new concepts, including corporate social performance (e.g., Wood 1991), cause-related marketing (e.g., Varadarajan and Menon 1988), enviropreneurial marketing (e.g., Menon and Menon 1997), and corporate environmentalism (e.g., Banerjee et al. 2003). However, a key unifying concept in the development of this literature is that of sustainability, defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development 1987, p. 43). Sustainability has frequently been associated with Elkington's (1997) triple bottom line framework, which highlights the importance of balancing economic prosperity (i.e., profit), social equity (i.e., people), and environmental quality (i.e., planet).

Although research in sustainability is voluminous and diverse, the majority of studies to date have addressed one or more of five key issues. First are the drivers of sustainability, which

pertain to external and internal factors contributing to firms' adoption of environmentally and/or socially friendly strategies. External influences examined include public or customer environmental pressures (e.g., Menguc et al. 2010), environmental regulatory forces (e.g., Menon et al. 1999), media and community triggers (e.g., Henriques and Sadorsky 1999), general business environment (e.g., Menon and Menon 1997), and industry type (e.g., reputation, history, visibility) (e.g., Banerjee et al. 2003). Internal factors investigated include top management commitment (e.g., Banerjee 2001), company structure and governance (e.g., Walls et al. 2012), and firm resources (e.g., Surroca et al. 2010).

The second issue, management of sustainability, centers on firms' sustainability practices and strategies. For example, Banerjee (2002) and Menguc and Ozanne (2005) discuss ways of creating environmentally oriented organizational values. Hunt and Auster (1990) describe the stages by which firms adjust planning and control systems to accommodate the risks associated with adopting environmental initiatives, and Bansal (2003) considers the process of applying environmental thinking across different levels in the organization. In addition, studies have focused on conceptualizing leadership styles and personal values/attitudes of the sustainable manager (e.g., Egri and Herman 2000), the use of environmental technologies in manufacturing (e.g., Klassen and Whybark 1999), the adoption of sustainability-related reporting schemes and certifications (e.g., Schaefer 2007), and typologies and measures of firms' sustainability practices (e.g., Turker 2009).

The third issue, the performance outcomes of sustainability, focuses on financial (e.g., Menguc et al. 2010), market (e.g., Miles and Covin 2000), customer (e.g., Luo and Bhattacharya 2006), operational (e.g., Klassen and Whybark 1999), shareholder (e.g., Godfrey et al. 2009), and social (e.g., Judge and Douglas 1998) performance dimensions. Despite this, recent reviews

in both management (Carroll and Shabana 2010) and marketing (Cronin et al. 2011) suggest that evidence on the performance outcomes of firms' sustainability efforts remains inconclusive. While longitudinal research designs have been proposed as a way to provide more conclusive evidence (e.g., Fraj-Andrés et al. 2009; González-Benito and González-Benito 2005), relatively few studies adopt such an approach (e.g., Waddock and Graves 1997). In addition, most studies to date have focused on the performance outcomes of sustainability from a corporate strategy viewpoint (e.g., corporate social responsibility practices, green strategies, and eco-orientation), with only a handful of investigations focusing on marketing strategy issues (e.g., Baker and Sinkula 2005; Mathur and Mathur 2000).

The fourth issue, marketing aspects of sustainability, includes the incorporation of sustainability elements in firms' marketing strategies (e.g., Baker and Sinkula 2005; Banerjee et al. 2003; Fraj-Andres et al. 2009), market orientation approaches to sustainability (e.g., Crittenden et al. 2011), socially responsible purchasing and distribution policies (e.g., Drumwright 1994; Salam 2009), and green advertising, promotional, and communication practices (e.g., Banerjee et al. 1995; Maignan and Ferrell 2004). In addition, a number of studies examine the ways environmental issues can be integrated into the firm's pricing tactics to attract customers (e.g., Menon et al. 1999) and the design and development of new products (e.g., Pujari 2006). While such studies have clearly contributed to developing knowledge in this area, research on marketing aspects of sustainability is still relatively sparse in comparison to other disciplines and many marketing phenomena have yet to be examined from a sustainability perspective (Cronin et al. 2011). In particular, despite the centrality of the "marketing mix" paradigm to understanding firms' marketing actions, there are surprisingly few studies that examine greening the different marketing mix components simultaneously.

Fifth, consumer aspects of sustainability reflect the growing attention to customers as key stakeholders. These studies explore consumers' attitudes toward environmental and social issues such as willingness to pay for sustainable products and to purchase from sustainable companies (e.g., Van Doorn and Verhoef 2011), the impact of sustainability practices on consumer perceptions and evaluations (e.g., Becker-Olsen et al. 2011; Wagner et al. 2009), consumer identification with socially and environmentally friendly firms (e.g., Bhattacharya and Sen 2003), and consumer attributions of firms' motives for sustainability (e.g., Vlachos et al. 2009).

Despite the growing body of research addressing these issues, sustainability-related topics have yet to become widely studied in top-tier marketing journals (Chabowski et al. 2010). Importantly, the extant sustainability-related marketing strategy literature is overwhelmingly conceptual in nature and provides little empirical insight into the critical managerial questions of whether (1) green marketing programs yield positive performance outcomes, (2) contextual conditions affect the green marketing program–performance link, and (3) internal factors facilitate or inhibit firms' adoption of green marketing programs. Addressing these questions is the focus of this study, and we now discuss the core issue of green marketing programs.

Green marketing programs

In the sustainability literature, green marketing refers to marketing practices, policies, and procedures that explicitly account for concerns about the natural environment in pursuing the goal of creating revenue and providing outcomes that satisfy organizational and individual objectives for a product or line (e.g., Menon et al. 1999). We therefore conceptualize green marketing programs as those that are designed to accomplish the firm's strategic and financial goals in ways that minimize their negative (or enhance their positive) impact on the natural

environment. This is consistent with the view that each of the main marketing program elements—product, price, channels of distribution, and marketing communications—can be designed and executed in ways that are more or less harmful to the natural environment (e.g., Dahlstrom 2011; Kotler 2011). Our green marketing program conceptualization is in line with prior definitions of enviropreneurial and green marketing (e.g., Menon and Menon 1997).

We focus on green marketing programs for two main reasons. First, while some firms may identify and target segments of more environmentally conscious customers in an effort to position themselves as a specialist green supplier, the majority of firms are unlikely to abandon their existing market positions despite growing interest in green issues (e.g., Belz and Peattie 2009). Thus, the challenge facing most firms is to execute their existing marketing strategies through the development and deployment of marketing programs that are "greener" than their past marketing efforts (e.g., Baker and Sinkula 2005). Second, from a causal adjacency perspective, observed product-market and accounting performance outcomes are more likely to be associated with the realized behaviors manifest in a firm's specific green marketing program actions than with a firm's broader environmental strategy intentions (e.g., HSBC's "zero carbon footprint" goal or Walmart's strategy of encouraging sustainability among its suppliers).

We define green product programs as product-related decisions and actions whose purpose is to protect or benefit the natural environment by conserving energy and/or resources and reducing pollution and waste (Danjelico and Pujari 2010; Ottman et al. 2006). Such programs may involve both strategic and tactical approaches (Menon et al. 2009). Tactically, firms face choices about how they might package and label products in more environmentally friendly ways. For example, in France, Hewlett-Packard reduced the use of disposable packaging for its laptops by 97% by selling them in a ready-made carrying case (Belz and Peattie 2009),

and Nestlé reduced the size of the paper labels on its bottled water brands by 30% (Ottman 2011). More strategically, firms may choose to use green product design techniques (Baumann et al. 2002), which often result in modifications to manufacturing processes (Fuller 1999). Here, the focus is on developing new environmentally friendly products from inception (e.g., biodegradable, recyclable) rather than adopting "end-of-pipe" solutions for existing products (Pujari 2006). For example, SC Johnson recently altered its manufacturing process and reformulated all its products to eliminate the use of polybutylene terephthalate (Esty and Winston 2009). Similarly, Nike introduced the Air Jordan XX3 shoes, which are made largely from recycled materials and use less glue in their construction (Ottman 2011).

Green pricing programs concern pricing practices that account for both the economic and environmental costs of production and marketing, while providing value for customers and a fair profit for business (Martin and Schouten 2012). Tactically, firms can use pricing actions, such as rebates for returning recyclable packaging (Menon et al. 1999), or charge higher prices for environmentally unfriendly products (Polonsky and Rosenberger 2001). For example, Coca-Cola introduced its RecycleBank to reward U.S. customers for recycling its bottles (Goldschmidt 2011), and in the U.K., retailer Marks & Spencer now charges customers for plastic carrier bags to minimize their use (Belz and Peattie 2009). More strategic approaches involve techniques such as life-cycle costing (e.g., incorporating product costs from research to disposal), which help determine prices for products from a sustainability perspective (Menon et al. 1999; Shrivastava 1995). For example, the German utility E.ON (2011) allows customers to purchase green electricity at higher prices to reflect the costs of generating power sustainably. Similarly, Seventh Generation sells its range of environmentally responsible household cleaners at significantly higher prices than regular alternatives to reflect its higher costs (Dahlstrom 2011).

Green distribution programs involve actions related to monitoring and improving environmental performance in the firm's demand chain (Godfrey 1998; Martin and Schouten 2012). Tactical efforts include working with channel partners to develop product reuse or disposal arrangements and ensuring customers are able to return recyclable materials. For example, Hewlett-Packard has partnered with Staples in its "authorized recycling location" program for printer ink cartridges (Matthews 2011). Strategically, firms may create policies requiring suppliers and distributors to adopt more environmentally responsible standards in fulfilling their respective marketing roles (Zhu and Sarkis 2004). Alternatively, firms may form "eco-alliances" with channel partners to improve the environmental impact of their joint activities, such as reconfiguring logistics arrangements to make them environmentally efficient (e.g., fewer and fuller cargos) (e.g., Dahlstrom 2011). For example, some of the world's leading consumer goods firms (e.g., Pepsi, Nestlé, L'Oreal) have collaborated with Tesco, one of their largest retail partners, to form the Supply Chain Leadership Coalition, which promotes ways to reduce the carbon footprint of their supply-to-consumer distribution activities (Spencer 2007).

Green promotion programs reflect communications designed to inform stakeholders about the firm's efforts, commitment, and achievements toward environmental preservation (Belz and Peattie 2009; Dahsltrom 2011). Tactically, this may also involve actions to reduce any negative environmental impact of the firm's marketing communication efforts (Kotler 2011). For example, Dell has switched to using, on average, 50% recycled paper in its direct mail catalogs (Gunther 2006), and ING Direct has linked all its printed promotional materials to carbon-offsetting programs (Belz and Peattie 2009). More strategic green promotion approaches are those designed to communicate the environmental benefits of the firm's goods and services. Such efforts may include advertising environmental appeals and claims, publicizing environmental

efforts, and incorporating environmental claims on product packaging (Banerjee 2002; Menon et al. 1999). For example, Timberland introduced its Green Index rating system to communicate the environmental impact of each Timberland product to consumers (Ottman 2011). Meanwhile, in the U.K., Procter & Gamble touted the success of its campaign to lower consumers' washer temperatures to benefit from advancements in Ariel's technology as saving 60,000 tons of carbon dioxide annually (Belz and Peattie 2009).

We now turn to the development of our research model (see Figure 1), which identifies key organizational and industry antecedents of green marketing programs and examines their product-market and accounting performance outcomes.

[Insert Figure 1 about here]

Research model and hypotheses

Drawing on our conceptualization above, the literature, and exploratory fieldwork (detailed in the "Method" section), we posit that examining the antecedents and performance effects of greening each aspect of the marketing mix may generate greater insights than treating marketing programs as a single construct. For example, some elements of firms' marketing programs may be greener than others, and the visibility and ease (and resultant imitability) of greening individual marketing program elements may differ. Thus, individual green marketing program elements may have different costs and benefits, and a firm's marketing program may have some components that are greener than others. Studies of green marketing programs should allow for these possibilities. However, neither the existing literature nor our fieldwork provided sufficient insights to enable us to specify a priori the relative strength of expected effects involving different green marketing components. Therefore, we simply allow these effects to differ in our analyses and treat this as an empirical question.

The role of slack resources

The management literature views firms' greening efforts as largely discretionary (Sharma 2000). A common framework adopted to explain such discretionary managerial choices is the motivation–opportunity–ability framework. From an ability perspective, developing and deploying green marketing programs may be primarily driven by the availability of needed resources. Our exploratory fieldwork suggests that the technical competence to develop green marketing program components is widely available either in-house or through specialist consultants. However, our interviews revealed that the availability of financial resources is crucial in enabling managers to green their marketing programs. For example, as one manager commented, "We are interested in environmental issues and many of us have the will to change things around there. But we are operating on a very tight budget." Similarly, another manager noted, "Understandably, many of these (environmental) practices cost money, a resource which is currently scarce in many departments at this particular time. Of course, there are benefits as well in terms of improving efficiency, satisfying our customers and employees, and fulfilling our responsibility toward the environment." The role of available financial resources revealed in our interviews is consistent with previous empirical studies of corporate social responsibility (e.g., McGuire et al. 1988; Waddock and Graves 1997) and some conceptual treatments of sustainability in marketing (e.g., Miles and Covin 2000).

The management literature argues that discretionary managerial choices are linked with the availability of slack resources—the surplus between the firm's financial resources and those required to maintain its operations (e.g., George 2005). Slack resources offer a buffer from short-term performance demands, allowing managers to take a longer-term view and experiment with

new strategies (e.g., Nohria and Gulati 1996). Environmental investments are often viewed as significant expenditures, with any payback being longer term, so firms with slack resources should be better able to make such investments (Campbell 2007; McGuire et al. 1988). Both the literature and our fieldwork therefore suggest that slack resources provide managers with the ability both to absorb the short-term cash outlays involved in greening their marketing programs and to wait to reap longer-term benefits from their deployment (Miles and Covin 2000; Waddock and Graves 1997). This leads us to posit the following:

H1: Slack resources have a positive effect on a firm's deployment of (a) green product programs, (b) green pricing programs, (c) green distribution programs, and (d) green promotion programs.

The role of top management risk aversion

One key opportunity factor that may affect managers' ability to develop and deploy socially responsible strategies (e.g., Waddock and Graves 1994) is the risk aversion of their top managers. Intuition may lead to an expectation that risk-averse top managers will have a negative effect on a firm's greening efforts.[2] However, stakeholder theory suggests that if one or more stakeholder groups support greening efforts—and this is not counterbalanced by other stakeholder groups that seek to block such efforts—risk-averse top managers will view greening efforts within the firm as being less risky than failing to respond to net stakeholder pressure for such moves (Jawahar and McLaughlin 2001). This is because addressing these stakeholder

[2] Managers may be expected to perceive greening efforts as risky for various reasons including: (1) they can involve the adoption of new technologies that may increase production complexity and unpredictability (Russo and Fouts 1997); (2) they can have a boomerang effect if stakeholders perceive them as exploitative, opportunistic, or deceptive (Menon and Menon 1997); (3) while consumers express interest in green issues, the available evidence suggests a limited role of these issues in purchase behavior (Öberseder, Schlegelmilch and Gruber 2011); and (4) as an emerging market area, the risks of market pioneering apply (Menon and Menon 1997). Perceptions of associated risks can lead managers to view such actions as threats to their jobs or company operations and to seek to eliminate such losses rather than maximize gains (Sharma 2000). However, our focus on stakeholder theory leads us to hypothesize a positive, as opposed to a negative, link between top management risk aversion and green marketing practices. We therefore treat the potential for a negative relationship as an empirical question.

environmental concerns can be viewed as the more "certain" option, as it is likely to prevent potential stakeholder problems (e.g., disruptive employee actions, unfavorable environmental publicity, environmental litigations and penalties) and ensure the continuous flow of resources needed by the firm (Jawahar and McLaughlin 2001). For example, Banerjee (2001) highlights the role of risk of failure to meet environmental regulations in top managers' decision making in corporate environmentalism. Conversely, the riskier option would be for top managers to ignore any stakeholder interests related to the environment since these stakeholders can in turn directly or indirectly hinder the supply of resources needed by the organization (Mitchell et al. 1997). For example, the decision by Esso (a trade name of Exxon Mobil) to ignore global warming concerns in 2001 led environmental groups to boycott the firm, causing disruption in gas stations, loss of sales, and negative publicity for the company (Observer 2003).

In the context of green marketing programs, this logic was clearly at play across different stakeholders in our fieldwork. For example, one manager noted, "Our customers are becoming more environmentally aware and want us to do more with regard to the environment." Another manager stated, "Some of my colleagues are really passionate about the environment and regularly inquire about environmental aspects in meetings." Some even commented about multiple stakeholders. For example, as one manager noted, "Customers, non-governmental organizations, regulators, and even our own employees are increasingly pressing us to do more on these issues. If we can satisfy them all and still make a profit then why not?" Stakeholder theory thus suggests that risk-averse top managers are likely to view inaction with respect to greening efforts as riskier than action in the presence of any greening pressure from stakeholders—and our fieldwork suggests that such pressure is widespread and growing. Thus:

H2: Top management risk aversion has a positive effect on a firm's deployment of (a) green product programs, (b) green pricing programs, (c) green distribution programs, and (d) green promotion programs.

The moderating role of competitive intensity

From a motivation perspective, our fieldwork suggests that managers are often moved to consider greening their marketing programs because of competitive pressures. When firms face less competition, customers have fewer alternatives, and firms may therefore have fewer incentives to change their current practices and to become more environmentally friendly (Menon and Menon 1997; Menon et al. 1999). Rather, managers may view moves to accommodate environmental concerns as unnecessary investments. In contrast, in highly competitive markets, customers have many alternative options and can easily switch suppliers. Firms in such markets are therefore forced to continually seek ways to satisfy customer requirements better than rivals (Auh and Menguc 2005). In these markets, slack resources must be transformed into investments that allow firms to remain competitive. Theory also suggests that when one supplier is successful in greening its marketing programs, others will reshape their marketing efforts to keep up with the "new norms" in the industry (Jennings and Zandbergen 1995). As one manager noted, "If my competitors are doing it, why should I stay behind?" In addition, from a stakeholder theory perspective, such competitive pressures are likely to intensify the risks of inaction perceived by risk-averse top managers. This is because failing to respond to any stakeholder pressures for greening moves in highly competitive markets gives any dissatisfied stakeholder a greater range of alternative choices. Thus, we suggest the following:

H3: Competitive intensity strengthens the link between slack resources and a firm's deployment of (a) green product programs, (b) green pricing programs, (c) green distribution programs, and (d) green promotion programs.

H4: Competitive intensity strengthens the link between top management risk aversion and a firm's deployment of (a) green product programs, (b) green pricing programs, (c) green distribution programs, and (d) green promotion programs.

The moderating role of slack resources

From an opportunity perspective, we argue for a positive direct effect of top management risk aversion on firms' green marketing program efforts (H2), but the management literature suggests two reasons to expect that the presence of slack resources may diminish this effect. First, slack resources are viewed as playing a buffer role in reducing managers' attention to external pressures and urgency in responding to external pressures when recognized (e.g., Nohria and Gulati 1996). Because the basis for H2 is pressure for greening efforts from one or more stakeholders, any buffering effect of slack resources may reduce or completely negate managers' attention to such pressures. In such circumstances, risk-averse top managers will likely support the status quo as the least risky alternative since they will assume that stakeholder needs with respect to greening efforts in the firm's marketing programs are already being met.

Second, performance feedback theory studies have shown that a firm's past performance alters top managers' risk perceptions in decisions about whether to take actions and what type of actions to take (e.g., Greve 1998). More specifically, top managers view "status quo" decisions as less risky when firms are performing well and regard "change" decisions designed to recapture a desired performance level as less risky when firms are performing at or below aspiration levels (e.g., Audia et al. 2000; Lant et al. 1992). This suggests that top managers may view green marketing programs as more risky when the firm has available slack resources (the outcome of strong past performance) than when it does not (indicating past performance at or below desired levels). Thus, when firms are not performing in ways that allow them to achieve desired/planned

performance levels, risk-averse top managers may view greening marketing programs as less risky than not doing so. However, when the firm has slack resources (indicating past performance in excess of planned goals), this may not be the case. Thus, we posit that:

H5: Slack resources weaken the link between top management risk aversion and a firm's deployment of (a) green product programs, (b) green pricing programs, (c) green distribution programs, and (d) green promotion programs.

Performance outcomes of green marketing programs

Our fieldwork revealed that firms may be seeking different types of performance benefits from green marketing programs. For example, one firm in our sample was seeking increased market share from its greening efforts, while another was pursuing cost savings. Two important dimensions of firm performance are effectiveness, the degree to which desired goals are attained, and efficiency, the ratio of resource inputs used to realized outcomes achieved (Vorhies and Morgan 2005). An important indicator of effectiveness is the extent to which a firm achieves its product-market objectives (i.e., product-market performance), while efficiency is usually assessed as a firm's ability to use its assets to generate profits (i.e., ROA). Because effectiveness and efficiency can be inversely related, and firms may make tradeoff decisions in their goal setting,[3] we develop separate hypotheses for each dimension of firm performance.

Green marketing programs may be beneficial for a firm's product-market performance for two main reasons. First, by adopting more environmentally friendly product, pricing, distribution, and promotion programs, firms may improve their image and reputation among customers (Fraj-Andrés et al. 2009; Miles and Covin 2000). By satisfying stakeholder demands for environmentally friendly products, firms can also experience less negative publicity and

[3] As past research has shown a direct product-market performance–ROA link, we include this as a control path in our model but do not offer a formal hypothesis as this link is not the focus of our investigation.

avoid problems such as environmentally driven customer switching and public boycotts (e.g., Menon et al. 1999). Second, a well-executed green marketing program may also yield an increase in sales volumes because it allows firms to access new market segments, such as customers for whom the environment is an overriding concern (Banerjee et al. 2003). This may enable the firm to increase its overall market share (Baker and Sinkula 2005). It may also lead to enhanced satisfaction and loyalty among current customers because green marketing programs may strengthen their perceptions of product quality and address any non-overriding sustainability concerns (Fraj-Andrés et al. 2009; Shrivastava 1995). Therefore, we posit that:

H6: A firm's product-market performance is positively associated with the deployment of (a) green product programs, (b) green pricing programs, (c) green distribution programs, and (d) green promotion programs.

The literature advances several reasons that green marketing programs may also positively affect firms' ROA. From a cost perspective, green marketing programs may lower expenses by minimizing material waste and the use of inefficient technologies (Miles and Covin 2000; Nidumolu et al. 2009). Firms with green marketing programs may also enjoy enhanced relationships with government and regulators (e.g., Menon et al. 1999), which may reduce costs such as environmental regulation compliance costs (Russo and Fouts 1997). Such firms may also incur reduced risk of environmental liabilities, potentially limiting their associated insurance and legal costs and even lowering their cost of capital (e.g., Christmann 2004). To the extent that sustainability issues are important to employees, firms with green marketing programs may also benefit from increased employee morale and output, enhancing productivity (Menon et al. 1999; Peng and Lin 2008). Green marketing programs may also result in higher revenues. As noted previously, green marketing programs may generate enhanced product-market performance,

which should increase unit sales. Green marketing programs may also allow firms to charge higher prices to some customers without reducing demand (Menon et al. 1999), which could translate into higher sales revenues. Therefore, we expect that:

H7: A firm's ROA performance is positively associated with the deployment of (a) green product programs, (b) green pricing programs, (c) green distribution programs, and (d) green promotion programs.

The effect of industry environmental reputation

Prior research has theorized that industry characteristics influence the link between firms' green marketing activities and performance (Menon and Menon 1997). Our fieldwork suggested that industry environmental reputation may be a particularly important factor. However, the literature reveals competing arguments. Industries traditionally viewed as "dirty" with respect to their environmental performance (e.g., oil, chemicals) tend to receive more attention regarding their environmental efforts. In such industries, environmental issues are more important to stakeholders, and successfully accommodating their concerns may be more likely to create competitive advantage (Hult et al. 2011; Menon and Menon 1997). Conversely, the literature also suggests that while stakeholders in "dirty" industries generally take a negative approach by scrutinizing and punishing firms' environmental insensitivity, stakeholders in "clean" industries may take a more positive approach by rewarding firms' ecological proactivity and sensitivity (Banerjee et al. 2003; Graves and Waddock 1994). Thus, clean industry firms may actually reap greater rewards than those in dirty industries. Given these competing viewpoints, we posit a non-directional hypothesis and treat this as an empirical question in our analyses:

H8: Industry environmental reputation moderates the effect of (a) green product programs, (b) green pricing programs, (c) green distribution programs, and (d) green promotion programs on firms' product-market and financial performance.

Method

Research setting

We chose U.K. manufacturing firms as our context for three reasons: (1) the U.K. is one of the most polluting European countries, (2) many U.K. firms have recently engaged in more environmental marketing approaches, and (3) increasing regulatory pressures have intensified such efforts. To enhance generalizability, we focused on six two-digit Standard Industrial Classification (SIC) industry groupings: 20 (food and kindred products), 26 (paper and allied products), 28 (chemicals and allied products), 30 (rubber and miscellaneous plastic products), 33 (primary metal industries), and 37 (transportation equipment). These sectors vary in terms of the amount of pollution produced, degree of public environmental concern, intensity of environmental regulations, and environmental liability risks (Banerjee et al. 2003). We focused on single-business dominant firms to more effectively isolate the effects of interest.[4]

Field interviews

Given the lack of previous empirical work in this domain, we conducted exploratory qualitative fieldwork to ensure that our research model was grounded by insights specific to the context of green marketing programs and to narrow the focus to a research model that adds to existing knowledge. To maximize variability and generalizability, we sought firms of different sizes, operating in a cross-section of industries, based in various geographic locations, and exhibiting different levels of environmental performance. Information redundancy was the deciding factor in determining the final sample size. In total, we interviewed seven managers, each working in a

[4] We also asked respondents whether the choice of their firms' target product market(s) was always influenced by environmental concerns. The mean rating of this item in the sample was relatively low (M = 2.87, SD = 1.48), indicating that our sample was not particularly influenced by environmentally specialized firms.

different firm. The firms in the fieldwork sample came from each of the six industrial groupings selected for the study and ranged from medium-sized manufacturers to FTSE 100 organizations, and the interviewed managers were key decision makers with job titles such as marketing director/manager, commercial director, and market development director.

The in-depth interviews lasted between 60 and 90 minutes and were conducted by the lead author. First, managers were asked general questions about environmental issues, their importance to firms, and factors that motivate firms to embrace sustainability. Second, managers were asked more specific questions related to their firms' green marketing practices, the triggering forces and impact of such practices, and possible conditions affecting their implementation and effectiveness. Examples of initiatives were also solicited, to better understand the specific practices deployed for each marketing mix element. In addition to the interview data, internal documents (e.g., memos, guidelines), internal publications (e.g., newsletters), and external publications (e.g., annual financial and sustainability reports) related to the study's topic were inspected. These subsequently were compared with information gathered during the interviews to check the accuracy and consistency of responses.

Questionnaire development and measures

Combining a systematic literature review with insights from our fieldwork, we identified the relevant constructs for our study. We then performed in-depth interviews with an additional seven marketing managers to help adapt existing measures to our context and to develop initial new measures. Next, we used five marketing academics familiar with sustainability research as expert judges to evaluate the extent to which each scale item was representative of its designated construct. We then drafted a questionnaire that we refined in personal interviews with six senior

managers who had experience with environmental marketing practices. Finally, we formally pretested a mail survey targeting 65 manufacturers, which were excluded from the main study, and received 21 responses. In the pretest we focused on (1) the quality of the responses gathered (e.g., completeness, variability, key informant competency), (2) written respondent feedback provided through a special comments section at the end of the questionnaire, and (3) verbal clarification and feedback through telephone when needed. We detected no particular problems with the measures, response formats, or workability of the questionnaire. The Appendix contains the specific items, data source, scale anchors, and literature sources for our measures.

In addition, we also collected secondary data to enable use to include needed control variables in our analyses. First, we controlled for firm size using a log transformation of the number of employees since larger firms are more visible and under greater stakeholder pressure to implement green marketing strategies (Waddock and Graves 1997). Second, we collected secondary objective data on industry growth because of its potential impact on performance. We computed this at time t_0 and measured it as the average of three-period year-on-year sales growth in the target firm's primary two-digit SIC code. Finally, because corporate success can also be the outcome of good management or a cumulative effect of past actions on future outcomes (Roberts and Dowling 2002), we included prior ROA (at t_0) as a control variable in our model.

Data collection

To reflect the causal ordering in our research model and reduce the potential effects of common method variance, we gathered secondary data on slack resources at time t_{-1} (slack resources generated during this period are those available to managers for deployment at t_0); mail survey data on green marketing program components, competitive intensity, and top management risk

aversion at time t_0; and survey data on product-market performance and secondary data on ROA at time t_{+1}. We used two one-year temporal lags to assess the effect of slack resources (t_{-1}) on the deployment of green marketing programs (t_0) and then the impact of these green marketing program components on firm performance (t_{+1}). Although the literature offers no specific time interval guidance for green marketing programs, our lags are consistent with research practices in other marketing areas (e.g., Jap and Anderson 2003). Our interviews also suggested that a one-year period was sufficient for slack resources to affect the development and deployment of green marketing programs and for such programs to produce initial results.

Informant identification We initially extracted a random sample of 1000 manufacturers from Dun & Bradstreet's Key British Enterprises Directory. These firms were contacted by telephone to qualify each entry and to verify contact details. This screening revealed that 98 firms were repeat entries, 49 had incorrect contact details, and 41 had ceased operations; thus, we excluded these 188 firms. We then contacted the remaining 812 firms to locate an appropriate key informant. After a series of calls, we identified 517 senior executives who were familiar with their firms' environmental marketing programs and willing and able to participate. We dropped 295 firms at this stage because no suitable informants were located (71 firms), named individuals could not be reached (33 firms) or were unwilling to participate (59 firms), corporate policy restrictions precluded identifying specific managers (57 firms) or participation in external surveys (49 firms), and the study topic was not considered applicable to their business (26 firms).

Survey response A survey packet was mailed to each of the 517 key informants. Reminder postcards, two additional mailings, and two telephone reminders produced 253 responses (49%

of the 517 firms). We dropped 19 questionnaires because of excessive missing data and eliminated another 13 because they failed our post hoc informant quality tests (described subsequently). Thus, usable questionnaires at time t_0 numbered 221, a 43% response rate. One year later, all 221 respondents were asked to complete a one-page follow-up questionnaire that captured subsequent product-market performance. Multiple mailings and telephone calls resulted in 185 responses. We excluded two questionnaires because respondents failed our informant quality checks. The sample for testing our hypotheses thus consisted of 183 observations (83% response rate at t_{+1}) for which we had complete longitudinal data.

Informant quality We assessed respondents' familiarity with, knowledge of, and confidence in providing information on the issues addressed using three seven-point scaled questions ranging from very low (1) to very high (7). The 13 t_0 and 2 t_{+1} questionnaires dropped exhibited a score lower than 4 in one or more of the three questions. The mean composite informant quality ratings ($n = 183$) were 5.87 and 6.02 at t_0 and t_{+1}, respectively. We also collected data from a second informant for 22 firms at time at t_0 and 17 firms at t_{+1}. Inter-rater reports positively correlated at levels ranging from .72 ($p < .01$) to .83 ($p < .01$); the inter-rater correlation for product-market performance was .81 ($p < .01$). Finally, we were able to gather secondary objective market performance data on sales growth for 36 firms in our sample. A strong correlation ($r = .79$, $p < .01$) between objective sales growth and the sales growth item in our scale provides some support for the validity of the subjective product-market performance measure we use. Overall, these results strongly support the quality of our key informant data.

Common method bias We used recommended ex ante procedural remedies (Podsakoff et al.

2003) to limit potential common method variance. For example, survey items appeared under general topic sections rather than being grouped by construct, preventing respondents from identifying items capturing a particular construct or guessing hypothesized links. The survey also clearly stated that there were no right or wrong answers and guaranteed informant anonymity. In addition, we used both primary and secondary data for our measures and a longitudinal design to test our hypotheses.[5] More specifically, we acquired secondary data for slack resources at t_{-1} and ROA at t_{+1} for all responding firms from the ICC Plum database. We assessed slack resources as the average cash reserves in the two-year period before t_0 (e.g., George 2005). To control for firm size, we divided average cash reserves by the firm's average total expenses (Voss et al. 2008). We also obtained secondary ROA data at t_{+1} for the sample firms from the database.

Social desirability bias To limit the possibility of social desirability bias, we carefully avoided direct questions on the consequences of company green practices for society in the survey (Banerjee 2001). We also included a scale to measure social desirability bias and found no significant correlations ($p < .10$) between the social desirability construct and any of our subjective construct measures at times t_0 and t_{+1}. In addition, inclusion of the social desirability measure in the structural model did not attenuate our hypothesis testing results. Thus, there is no evidence that social desirability bias is an issue in our findings.

Nonresponse bias To assess possible non-response bias, we compared early and late respondents and found no significant differences with regard to either the study constructs or firm demographics (e.g., number of employees, annual sales). We also obtained secondary data on

[5] Several post hoc tests (e.g., Harman's single-factor test, marker variable approach) suggested by Podsakoff et al. (2003) also failed to reveal any evidence of common method bias in our data and results.

employee size, annual sales, and firm age for 41 randomly selected non-responding firms and compared these with the same data for responding firms (e.g., Hultman et al. 2011). Again, we detected no significant differences. Thus, non-response bias does not seem to pose a serious problem in our data.

Analysis and results

Measure validation

To assess validity, we ran a single measurement model in which each indicator was restricted to load on its a priori specified factor, and all factors were allowed to correlate. Single-item constructs were standardized (i.e., slack resources, ROA, and industry growth) or log transformed (i.e., firm size) to normalize them, and their error term was set at .10 (Anderson and Gerbing 1988). We used the elliptical reweighted least squares estimation procedure in EQS, which provides unbiased parameter estimates for both normal and non-normal data. The measurement model results (see Table 1) reveal a significant chi-square statistic ($\chi^2_{(434)} = 638.49$, $p = .001$), which may be expected because of its sensitivity to sample size. The other goodness-of-fit indices (χ^2/d.f. = 1.47, normed fit index [NFI] = .98, non-normed fit index [NNFI] = .99, comparative fit index [CFI] = .99, incremental fit index [IFI] = .99, and root mean square error of approximation [RMSEA] = .051) suggest a good model fit. Items loaded strongly on their designated constructs ($t \geq 9.55$), indicating convergent validity.

Discriminant validity was assessed in two ways. First, for each possible pair of constructs we compared measurement models in which the covariance between the two constructs was allowed to vary and then fixed at one. Changes in chi-square were larger than the critical value in each case, indicating discriminant validity. Second, we estimated the squared correlation

between all possible pairs of constructs. In all cases, average variance extracted (AVE) estimates were higher than the corresponding squared correlation, indicating discriminant validity among the measures. Table 1 shows that all scales exhibited acceptable composite reliability scores and Table 2 presents the correlation matrix and summary statistics of the measures.

[Insert Tables 1 & 2 about here]

Structural model

A full structural model was run to test our hypotheses. We mean-centered the interaction terms to ensure unbiased parameter estimates and to mitigate potential multicollinearity. We calculated the loadings and error variances of the two interaction terms using Ping's (1995) equations. Table 3 shows the standardized coefficients, t-values, and significance levels of the structural paths. The fit statistics ($\chi^2_{(431)} = 732.28$, p = .001; χ^2/d.f. = 1.70; NFI = .97; NNFI = .98; CFI = .98; IFI = .98; and RMSEA = .062) suggest that the model represents a satisfactory fit to the data. Squared multiple correlations are .43, .28, .38, and .39 for green product, pricing, distribution, and promotion programs, respectively; .21 for product-market performance; and .37 for ROA.

[Insert Table 3 about here]

Main effects[6] Table 3 shows that availability of slack resources has a positive effect on green marketing program components and supports H1a–1d. Specifically, slack resources are strongly related to the deployment of green product (β = .39, t = 5.02, p < .01), pricing (β = .46, t = 5.07, p < .01), distribution (β = .47, t = 5.81, p < .01), and promotion (β = .45, t = 5.72, p < .01) programs. Our results also offer broad support for H2a, H2c, and H2d. Specifically, we find that

[6] As a robustness check, we estimated a rival model in which we also included additional internal (i.e., top management commitment) and external (i.e., public environmental concern, regulatory forces) drivers of green marketing suggested in the extant literature. The direct effects we report here are robust in this alternative model. However, to maintain acceptable parameter-to-observation ratios that allow us to test all our hypotheses simultaneously, we do not include these additional controls in our final hypothesis testing model.

top management risk aversion is positively related to the deployment of green product (β = .33, t = 4.39, p < .01), distribution (β = .21, t = 2.77, p < .01), and promotion (β = .19, t = 2.52, p < .01) programs. However, we find no support for H2b linking top management risk aversion and green pricing (β = .00, t = .01, p > .05). This may be due to green pricing approaches generally resulting in higher prices (e.g., Kotler 2011; Shrivastava 1995), which often risks lowering demand (e.g., Kalyanaram and Winer 1995). Thus, managers may view the risk of failing to cater to stakeholder environmental demands by engaging in greener pricing programs as being offset by the risk of reduced demand associated with price increases.

The results also provide strong evidence of the positive performance impact of greening firms' marketing programs but show that these effects differ across individual marketing program components. Specifically, in line with H6a and H6c, we find that green product (β = .25, t = 2.34, p < .05) and distribution (β = .23, t = 2.28, p < .05) programs positively affect firms' product-market performance. However, green pricing (β = .01, t = .07, p > .05) and promotion (β = .00, t = .01, p > .05) programs have no significant relationship to product-market performance, offering no support for H6b and H6d. This situation reverses for the ROA effects of green marketing programs. While green product (β = –.08, t = –.84, p > .05) and distribution (β = .15, t = 1.76, p > .05) programs have no direct link to ROA, lending no support for H7a and H7c, green pricing (β = .18, t = 2.11, p < .05) and promotion (β = .24, t = 2.64, p < .01) programs are related positively to ROA, in line with H7b and H7d. Considering that we find the expected positive association between product-market performance and ROA (β = .19, t = 2.10, p < .05), our results indicate only an indirect financial performance impact of green product and distribution programs via their effect on product-market performance.

These findings suggest that green product and distribution programs are more effective in

differentiating firms' value offerings than green pricing and promotion programs. For green pricing, this may be due to a combination of such programs being less visible to customers than green product and distribution programs and their likely effect on raising prices. The absence of a significant effect of green promotion on product-market performance might be explained by ease of imitation; firms often begin their greening with promotional efforts, and thus effective differentiation is likely more difficult to achieve with such programs.[7] As neither green pricing nor promotion programs are significantly associated with firms' product-market performance, our results suggest that their ROA performance benefit is likely driven by either lowering costs or increasing realized prices rather than enhancing unit sales. For green pricing, this may reflect a combination of effects because it involves both building environmental costs and benefits into prices charged and using pricing tactics to enhance recycling efforts, which may help lower raw material costs. In contrast, green promotion programs are less likely to lower firms' costs. However, they may help firms recoup investments in greening other marketing program components by keeping unit demand high, which would explain the enhanced ROA we observe.

In sum, these results reveal a clear pattern in the performance effects of green marketing mix components and show that each can influence product-market performance and ROA directly or indirectly. On the one hand, customers appear to assign higher value to "hard" green marketing practices (i.e., product and distribution), perhaps realizing that efforts in those areas can be more difficult and costly to implement. At the same time, the high costs involved in changing product and distribution practices may be the reason for the absence of significant ROA effects. Conversely, green pricing and promotion strategies have an effect on ROA but no impact on product-market performance. This suggests that as more firms jump on the green

[7] This may also be attributed to the emergence of "green washing," i.e., false, exaggerated, or misleading environmental claims highlighted in the popular media that may lead customers to be sceptical of green promotional efforts and view them indifferently. We thank an anonymous reviewer for identifying this possibility.

bandwagon, customers and other stakeholders may be unimpressed with "soft" green marketing approaches (i.e., promotion and pricing), since these are easy to implement and copied by competitors. Nevertheless, a combination of low implementation costs (i.e., promotion) and higher receipts (i.e., pricing) may make these practices financially beneficial.

Moderation effects Our results suggest a significant, positive effect of slack resources × competitive intensity on green pricing (β = .16, t = 1.98, p < .05) and promotion (β = .16, t = 2.19, p < .05) programs, in support of H3b and H3d, respectively. However, though in the expected direction, slack resources × competitive intensity has no significant effect on green product (β = .02, t = .30, p > .05) and distribution (β = .09, t = 1.24, p > .05) programs, lending no support for either H3a or H3c. A plausible reason for such a pattern of results involves the relative ease of changing different components of any marketing program—in general, firms can adjust pricing and promotion approaches more quickly than product and distribution programs that often involve much longer lead times (e.g., Kotler 2011).

The results also indicate that top management risk aversion × slack resources negatively affects green product (β = –.18, t = –2.48, p < .05), distribution (β = –.17, t = –2.32, p < .05), and promotion (β = –.17, t = –2.37, p < .05) programs, in support of H5a, H5c, and H5d, respectively. However, though in the expected direction, the interaction term is not significantly related to green pricing (β = –.10, t = –1.27, p > .05), providing no support for H5b. This is in line with our finding relating to the absence of a direct effect of top management risk aversion on the adoption of green pricing programs (H2b). Table 3 also shows that competitive intensity has no moderating impact on the links between top management risk aversion and green marketing program components, offering no support for H4a–4d. Combined with the direct effects of

competitive intensity on two of the four green marketing components we observe, this suggests that top management risk aversion and competitive intensity are independent as antecedents of firms' green marketing efforts.

To assess the moderating effects of industry environmental reputation, we used multi-group analyses (see Table 4).[8] Following Banerjee et al. (2003), we divided our sample into "good" (i.e., SICs 20, 30, 37) and "bad" (i.e., SICs 26, 28, 33) environmental reputation groups.[9] We ran two models to test H8 with respect to product-market performance and another two for ROA: restricted (i.e., imposing an equality constraint on the hypothesized structural paths) and non-restricted (i.e., allowing all parameter estimates to vary between the two groups). In terms of product-market performance, the unconstrained model yields $\chi^2_{(642)} = 1199.45$ ($p = .001$), and the constrained model yields $\chi^2_{(646)} = 1210.47$ ($p = .001$). The significant difference of $\Delta\chi^2_{(4)} = 11.02$ ($p < .05$) between the two models supports the moderating role of the industry's environmental reputation. However, the results indicate different effects across the two groups. While green product ($\beta = .35$, $t = 2.88$, $p < .01$) and distribution ($\beta = .22$, $t = 2.09$, $p < .05$) programs enhance firms' product-market performance in industries with a good environmental reputation, green pricing ($\beta = .29$, $t = 2.28$, $p < .05$) and promotion ($\beta = .24$, $t = 1.99$, $p < .05$) programs positively affect product-market performance in industries with a bad environmental reputation.

[Insert Table 4 about here]

For the green marketing program–ROA linkage, the non-restricted model yields $\chi^2_{(642)} = 1199.45$ ($p = .001$), and the restricted model yields $\chi^2_{(646)} = 1209.48$ ($p = .001$). The $\Delta\chi^2_{(4)} = 10.03$

[8] We also tested for industry effects using dummy two-digit SIC variables in regression analyses and found no evidence of any effect on product-market or financial performance.

[9] These were based on (1) industry pollution levels (Cole et al. 2005), (2) intensity of environmental regulations, reflected in total 1999–2006 environmental protection expenditure (DEFRA 2008), (3) the eco-reputation of each industry reported in the literature (e.g., Banerjee et al. 2003; Hoffman 1999), and (4) discussions with industry experts, policy makers, senior company executives, and consumers. In addition, seven academic researchers who served as expert judges verified the face validity of this classification.

($p < .05$) between the two models is also significant. In the good environmental reputation group, we found no significant relationships for green product ($\beta = –.15$, $t = –1.22$, $p > .05$) and distribution ($\beta = –.03$, $t = –.30$, $p > .05$) programs; in contrast, green pricing ($\beta = .31$, $t = 2.87$, $p < .01$) and promotion ($\beta = .21$, $t = 2.01$, $p < .05$) programs play a significant role in enhancing ROA. In the bad reputation group, the green distribution program–ROA link is significant ($\beta = .46$, $t = 4.52$, $p < .01$), while no such effects occur for green product ($\beta = –.10$, $t = –1.08$, $p > .05$), pricing ($\beta = –.08$, $t = –.71$, $p > .05$), and promotion ($\beta = .15$, $t = 1.47$, $p > .05$) programs.

In sum, these results lend partial support for H8. In industries with a good environmental reputation, the general pattern of green marketing program performance outcomes identified in the overall sample is broadly repeated. However, in industries with a bad environmental reputation, we observe a very different pattern: green pricing and promotion programs have positive effects on firms' product-market performance, and green distribution programs positively affect ROA. This suggests that green pricing tactics are more visible in such industries, perhaps because of greater product disposal regulations encouraging recycling, which is often a focus of green pricing programs. Customers might also accept that such pricing practices can be the right thing to do for firms wishing to "clean up" their business practices and change the norms in the industry. Our results may also indicate that customers pay more attention to green promotion programs in such industries, enabling firms to differentiate themselves more effectively and reassure customers about their environmental efforts. Notably, green product programs are not linked to either performance outcome in bad industries. This may be due to such programs not being credible with customers, or it may simply be that such firm-level green product efforts are not enough to overcome negative industry-level perceptions. There is also a likelihood that green product programs might be more expensive in industries

with a bad reputation due to the higher regulatory requirements involved. It might thus be difficult for firms in these industries to compensate for green product investments and improve financial results. Finally, in industries with a bad environmental reputation green distribution programs seem to make no sense from a product-market performance standpoint, while such programs are beneficial from a ROA standpoint. This suggests greater and closer collaboration between forward and backward supply chain members can bring advantageous environmental results for the industry and positive financial consequences for the firms involved.

Implications for theory and practice

This study makes three important contributions to the literature: (1) using rigorous data collection and analysis procedures, we demonstrate for the first time the specific effects of each green marketing mix component on product-market and ROA performance; (2) by extending prior research on the role of industry in green marketing, we uncover how and why green marketing mix programs yield different performance results to firms operating in industries with dissimilar environmental reputation; and (3) we examine two unique and previously untested drivers of green marketing programs, slack resources and top management risk aversion, and reveal factors that can enhance or diminish the effects of these drivers. The results offer a number of useful theoretical and managerial implications which are highlighted below.

Theoretical implications

Our results offer three main implications for theory. First, we find that top management risk aversion and slack resources can substitute as enablers of the greening of firms' marketing programs. Specifically, our results show that, independently, slack resources are positively

associated with green marketing programs and risk-averse top managers generally view greening marketing programs as less risky than not doing so, leading to a positive relationship. However, when the firm has both risk-averse top managers and slack resources, the positive effect of top management risk aversion on green marketing programs is diminished. In the broader sustainability literature, most studies on the drivers of firms' sustainability efforts theorize and empirically examine the independent effects of antecedent variables. Importantly, our results suggest that such variables may also interact in ways that enhance understanding of when and why firms engage in greening their programs. Incorporating such interactions among antecedent variables may therefore enhance knowledge of the drivers of firms' sustainability efforts.

Second, most treatments of green marketing in the extant literature have drawn their theorizing from the notion of stakeholder theory (e.g., Banerjee et al. 2003; Maignan and Ferrell 2004). Much of this literature assumes that because of the different motivations of stakeholder groups, their requirements with respect to marketing's role in the natural environment vary widely and likely conflict (e.g., Cronin et al. 2011). Our results suggest that the interests of the different stakeholders involved may not be as divergent as commonly assumed. Rather, our findings indicate that engaging in the greening of marketing programs can bring together the interests of at least managers (top management risk aversion and ROA), customers (product-market performance), and shareholders (ROA) with respect to the natural environment. Presumably, the interests of environmental activists will also be aligned to the extent that greening marketing programs are shown to deliver environmental benefits.

Third, our results highlight the potential value of simultaneously examining different elements of firms' marketing programs in this context. The limited research in this domain has either focused on a single aspect of the firm's marketing program (e.g., Pujari 2006) or used a

global or unidimensional green marketing strategy measure (e.g., Banerjee et al. 2003). Our analyses show that while there are relatively strong positive correlations among the four different marketing program components (Table 2),[10] each marketing program component can have different predictors and performance outcomes under different conditions. Thus, future theorizing and empirical work on green marketing strategies should allow for this possibility.

Managerial and public policy implications

This study also offers important new insights for managers and policy makers. First, our findings provide needed empirical support for investments in greening firms' marketing programs. We find strong evidence to support the performance benefits of greening marketing programs and no indication of downside risks associated with such investments in terms of any negative links with firms' subsequent product-market and ROA performance. Thus, managers can be confident that greening their marketing programs can have a beneficial effect on their firms' future performance. This suggests that the framing of any internal debate within firms on this issue should now be cast in terms of "why not" rather than "why." However, managers should also note that the environmental reputation of their industry may dictate which components of green marketing programs may offer the greatest investment potential.

Second, for managers interested in greening their firms' marketing programs, our results offer some alternative approaches. Specifically, our findings show that financial investments in green pricing and promotion programs tend to rise in the presence of intense competition. In addition, making green marketing program investments is generally easier when deployable

[10] This factor structure was verified in an exploratory factor analysis using maximum likelihood extraction and varimax rotation that revealed a four-factor solution corresponding to the individual marketing mix components, with all items loading highly on the relevant factor (loadings >.54) and no major cross-loadings. We also compared our original measurement model with one that treated green marketing programs as a second-order construct. A chi-square difference test revealed that our separate components model is significantly better ($\Delta\chi^2_{(26)} > 54.05$, $p < .001$).

slack resources are available within the firm or when top managers are less risk averse. However, our results show that managers should also pay careful attention to the interaction between these two variables. In the absence of slack resources, managers may find it easier to emphasize stakeholder pressures for greening the firms marketing efforts and frame failing to act on these stakeholder pressures as a bigger risk than doing so when seeking top management support for such initiatives. Conversely, in the presence of slack resources, managers may achieve more success by framing the greening of marketing programs as a proactive reward investment opportunity rather than as a risk-reducing strategy.

Third, our results should also interest policy makers. One of the study's main findings is the significant firm performance benefits stemming from green marketing programs. Policy makers can therefore emphasize the strategic, rather than simply the normative and regulatory, benefits of environmental sustainability in an effort to encourage more firms to become environmentally sensitive. In addition, our results suggest that firms with limited or no slack resources will find it much more difficult to implement green marketing programs. Therefore, policy makers may find advantage in offering technical and economic assistance and recognizing excellence in sustainable marketing practices to help firms embrace and implement green marketing programs. For example, government can provide support to firms that participate in voluntary environmental programs to offset some of the high initial investment costs associated with training staff, coordinating activities, and changing marketing practices.

Limitations

Three main limitations should be considered when interpreting our results. First, we collected most of the data from a single key informant in each firm. Although a subsample of secondary

informants indicated strong inter-rater reliability, the potential for key informant bias still exists. Thus, research employing multi-informant designs or direct investigator observation would be useful to confirm our results. Second, our sample included firms from six different two-digit SIC industry groupings in the U.K., but we cannot guarantee that our results generalize beyond these industries or in different countries. Future studies in additional industry and country contexts would help establish generalizability. Third, due in part to logistical constraints, we used only one industry factor (i.e., environmental reputation based on six industry groupings) as a moderator, revealing an interesting pattern of results with regard to the positive performance effects of green marketing mix programs. Nonetheless, there are other potentially relevant industry factors including technological turbulence, industry structure, and industry concentration. Similarly, we were limited in our ability to collect data to control for other possible between-firm differences. For example, we were unable to collect data on firms' marketing capabilities to assess the likely quality of their green marketing programs. As our ability to measure parsimoniously green marketing practices improves, the potential for controlling for a wider range of factors in future studies should increase.

Further research

Our findings also suggest several avenues for further research. We focus on three areas that seem particularly promising to enhance understanding of this important new area of marketing strategy research. First, what explains the differing impact of individual green marketing program components on firms' product-market and financial performance outcomes? We offer some plausible reasons for the differences we observe in our data but have no evidence to support or refute these explanations. Developing a deeper understanding of the causal

relationships linking different green marketing activities with their performance outcomes is important to theory development in this domain. The study of the precise nature of these causal linkages is also clearly important for managers attempting to evaluate potential green marketing investments. Our study shows that one industry-level variable (i.e., industry environmental reputation) is one key factor moderating the relationships between each of the green marketing mix components and performance. Are there also other industry-level moderators? In addition, are there also firm-level moderators? For example, are firms pursuing alternative corporate or product-market strategies likely to achieve different outcomes from green marketing programs?

Second, given that our study investigates the impact of green marketing programs from a firm perspective, future research should examine the effects of green marketing practices from a customer perspective as well. Specifically, although our research shows that firms may benefit from responding to pressures to green their marketing programs, the pattern of results we observe with respect to the product-market performance outcomes of green marketing programs suggest that customers may respond differently to different green marketing program components. We offer a number of plausible explanations for the observed pattern of results; however, we have no data that allow us to investigate how and why customers may develop different reactions to alternative green marketing practices. Understanding drivers of customer response is clearly an important area for future research in this domain. In addition, we show that customer responses to green marketing efforts may also be different for industries with different environmental reputations. This raises the important question of what other contingencies affect how customers perceive and respond to green marketing programs?

Third, we draw on stakeholder theory to develop the rationale for several expected relationships in our model, and we test our model for robustness to some stakeholder interests

such as public concern and regulatory forces. A fruitful avenue for research to build on the present findings would be to more explicitly integrate issues such as stakeholder type (i.e., primary, secondary), relative salience (Mitchell et al. 1997), involvement (Crittenden et al. 2011), and multiplicity (Neville and Menguc 2006) into the conceptual framework and to investigate potential conditioning effects of such stakeholder pressures on the relationships we examine (e.g., on the links between slack resources and green marketing mix components). It would also be enlightening if future studies considered how different stakeholders influence the framing of various sustainability issues by top managers. Doing so would offer the potential for future green marketing studies to contribute directly to stakeholder theory.

Conclusion

While environmental activists have long advocated the benefits to the natural environment of greening marketing practices, many managers have remained unconvinced that such investments make strategic and financial sense for their firms. In the absence of credible empirical evidence on the benefits of green marketing, this is unsurprising. Our study develops a new model of green marketing programs and presents a rigorous empirical test of the model. Our results show that firms that green their marketing programs can realize positive product-market performance outcomes. By directly and indirectly linking green marketing program components with firms' ROA, we also show that the revenue benefits can more than compensate for the costs involved in such investments. Our study also provides new insights into slack resources and top management risk aversion as theoretically important antecedents of green marketing programs that have important implications for managers seeking to gain top management support for greening their firm's marketing programs.

References

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. Psychological Bulletin, 103, 411–423.

Audia, P. G., Locke, E. A., & Smith, K. G. (2000). The paradox of success: An archival and a laboratory study of strategic persistence following radical environmental change. Academy of Management Journal, 43, 837–853.

Auh, S., & Menguc, B. (2005). Balancing exploration and exploitation: The moderating role of competitive intensity. Journal of Business Research, 58, 1652–1661.

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

Banerjee, S. B. (2001). Managerial perceptions of corporate environmentalism: Interpretations from industry and strategic implications for organizations. Journal of Management Studies, 38, 489–513.

Banerjee, S. B. (2002). Corporate environmentalism: The construct and its measurement. Journal of Business Research, 55, 177–191.

Banerjee, S. B., Gulas, C. S., & Iyer, E. S. (1995). Shades of green: A multidimensional analysis of environmental advertising. Journal of Advertising, 24, 21–31.

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

Bansal, P. (2003). From issues to actions: the importance of individual concerns and organizational values in responding to natural environmental issues. Organization Science, 14, 510–527.

Baumann, H., Boons, F., & Bragd, A. (2002). Mapping the green product development field: Engineering, policy and business perspectives. Journal of Cleaner Production, 10, 409–425.

Becker-Olsen, K. L., Taylor, C. R., Hill, R. P., Yalcinkaya, G. (2011). A cross-cultural examination of corporate social responsibility marketing communications in Mexico and the United States: Strategies for global brands. Journal of International Marketing, 19, 30–44.

Belz, F.-M., & Peattie, K. (2009), Sustainability marketing: A global perspective. West Sussex: John Wiley & Sons.

Bhattacharya, C. B., & Sen, S. (2003). Consumer-company identification: A framework for understanding consumers' relationships with companies. Journal of Marketing, 67, 76–88.

Campbell, J. L. (2007). Why would corporations behave in socially responsible ways? An institutional theory of corporate social responsibility. Academy of Management Review, 32, 946–967.

Carroll, A. B., & Shabana, K. M. (2010). The business case for corporate social responsibility: A review of concepts, research and practice. International Journal of Management Reviews, 12, 85–105.

Chabowski, B. R., Mena, J. A., & Gonzalez-Padron, T. L. (2011). The structure of sustainability research in marketing, 1958-2008: A basis for future research opportunities. Journal of the Academy of Marketing Science, 39, 55–70.

Christmann, P. (2004). Multinational companies and the natural environment: Determinants of global environmental policy standardization. Academy of Management Journal, 47, 747–760.

Cole, M. A., Elliott, R. J. R., & Shimamoto, K. (2005). Industrial characteristics, environmental regulations and air pollution: An analysis of UK manufacturing. Journal of Environmental Economics & Management, 50, 121–143.

Crittenden, V. L., Crittenden, W. F., Ferrell, L. K., Ferrell, O. C., & Pinney, C. C. (2011). Market-oriented sustainability: A conceptual framework and propositions. Journal of the Academy of Marketing Science, 39, 71–174.

Cronin, J. J, Jr., Smith, J. S., Gleim, M. R., Ramirez, E., & Martinez, J. D. (2011). Green marketing strategies: An examination of stakeholders and the opportunities they present. Journal of the Academy of Marketing Science, 39, 158–174.

Dahlstrom, R. (2011). Green marketing management. International Edition, Australia: South-Western/Cengage Learning.

Danjelico, R. M., & Pujari, D. (2010). Mainstreaming green product innovation: Why and how companies integrate environmental sustainability. Journal of Business Ethics, 95, 471–486.

DEFRA (2008). Final report environmental protection expenditure by industry: 2006 UK Survey. London: Department of Environment, Food and Rural Affairs.

Drumwright, M. E. (1994). Socially responsible organizational buying: Environmental concern as a noneconomic buying criterion. Journal of Marketing, 58, 1–19.

E.On (2011). E.ON ÖkoStrom. https://www.eon.de/de/eonde/pk/produkteUndPreise/Strom/E.ON_OekoStrom/index.htm. Accessed 12 July 2012.

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

Elkington, J. (1997). Cannibals with forks: The triple bottom line of 21st century business. Oxford: Capstone Publishing.

Esty, D. C., & Winston, A. S. (2009). Green to gold. Hoboken, NJ: John Wiley & Sons Inc.

Etzion, D. (2007). Research on organizations and the natural environment, 1992– present: A review. Journal of Management, 33, 637–664.

Fraj-Andrés, E., Martinez-Salinas, E., & Matute-Vallejo, J. (2009). A multidimensional approach to the influence of environmental marketing and orientation on the firm's organisational performance. Journal of Business Ethics, 88, 263–286.

Fuller, D. A. (1999). Sustainable marketing: Managerial-ecological issues. Thousand Oaks, CA: Sage Publications.

George, G. (2005). Slack resources and the performance of privately held firms. Academy of Management Journal, 48, 661–678.

Godfrey, P. C., Merrill, C. B., & Hansen, J. M. (2009). The relationship between corporate social responsibility and shareholder value: An empirical test of the risk management hypothesis. Strategic Management Journal, 30, 425–445.

Godfrey, R. (1998). Ethical purchasing: Developing the supply chain beyond the environment. In: Russel, T. (Ed.), Greener Purchasing: Opportunities and Innovations. Sheffield, England: Greenleaf Publishing, 244–251.

Goldschmidt, B. (2011). Water works. Progressive Grocer Online, http://www.progressivegrocer.com/print/article/water-works/2271/. Accessed 12 July 2012.

González-Benito, J., & González-Benito, O. (2005). Environmental proactivity and business performance: An empirical analysis. Omega, 33, 1–15.

Graves, S. B., & Waddock S. A. (1994). Institutional owners and corporate social performance. Academy of Management Journal, 37, 1035–1046.

Greve, H. R. (1998). Performance, aspirations, and risky organizational change. Administrative Science Quarterly, 44, 58–86.

Gunther, M. (2006). Retailers clean up their paper trails. Fortune. http://money.cnn.com/2006/12/13/magazines/fortune/pluggedin_gunthercatalogs.fortune/index.htm. Accessed 12 July 2012.

Henriques, I., & Sadorsky, P. (1999). The relationship between environmental commitment and managerial perceptions of stakeholder importance. Academy of Management Journal, 42, 87–99.

Hoffman, A. J. (1999). Institutional evolution and change: Environmentalism and the U.S. chemical industry. Academy of Management Journal, 42, 351–371.

Hult, G. T. M. (2011). Market-focused sustainability: Market orientation plus! Journal of the Academy of Marketing Science, 39, 1–6.

Hult, G. T. M., Mena, J. A., Ferrell, O. C., & Ferrell, L. (2011). Stakeholder marketing: A definition and conceptual model. Academy of Marketing Science Review, 1, 44–65.

Hultman, M., Katsikeas, C. S., & Robson, M. J. (2011). Export promotion strategy and performance: The role of international experience. Journal of International Marketing, 19, 17–39.

Hunt, C. B., & Auster, E. R. (1990). Proactive environmental management: Avoiding the toxic trap. MIT Sloan Management Review, 31, 7–18.

Jap, S. D., & Anderson, E. (2003). Safeguarding interorganizational performance and continuity under ex post opportunism. Management Science, 49, 1684–1701.

Jawahar, I. & McLaughlin, G. (2001). Toward a descriptive stakeholder theory: An organizational life cycle approach. Academy of Management Review, 26, 397–414.

Jaworski, B. J., & Kohli, A. K. (1993). Market orientation: Antecedents and consequences. Journal of Marketing, 57, 53–70.

Jennings, D. P., & Zandbergen, P. A. (1995). Ecologically sustainable organizations: An institutional approach. Academy of Management Review, 20, 1015–1052.

Judge, W. Q. Jr., & Douglas, T. J. (1998). Performance implications of incorporating natural environmental issues into the planning process: An empirical assessment. Journal of Management Studies, 35, 241–262.

Kalyanaram, G., & Winer, R. S. (1995). Empirical generalizations from reference price research. Marketing Science, 14, 161–169.

Klassen, R. D., & Whybark, D. C. (1999). The impact of environmental technologies on manufacturing performance. Academy of Management Journal, 42, 599–615.

Kotler, P. (2011). Reinventing marketing to manage the environmental imperative. Journal of Marketing, 75, 132–135.

Lant, T. K., Milliken, F. J., & Batra, B. (1992). The role of managerial learning and interpretation in strategic persistence and reorientation: An empirical exploration. Strategic Management Journal, 13, 585–608.

Leonidou, C. N., & Leonidou, L. C. (2011). Research into environmental marketing/management: A bibliographic analysis. European Journal of Marketing, 45, 68–103.

Luchs, M. G., Naylor, R. W., Irwin, J. R., & Raghunathan, R. (2010). The sustainability liability: Potential negative effects of ethicality on product preference. Journal of Marketing, 74, 18–31.

Luo, X., & Bhattacharya, C. B. (2006). Corporate social responsibility, customer satisfaction, and market value. Journal of Marketing, 70, 1–18.

Maignan, I., & Ferrell, O. C. (2004). Corporate social responsibility and marketing: An integrative framework. Journal of the Academy of Marketing Science, 32, 3–19.

Martin, D., & Schouten, J. (2012). Sustainable marketing. Upper Saddle River, NJ: Prentice Hall/Pearson.

Mathur, L. K., & Mathur, I. (2000). An analysis of the wealth effects of green marketing strategies. Journal of Business Research, 50, 193–200.

Matthews, R. (2011). HP's Sustainable innovation serves the planet and profits. Green Conduct, http://www.greenconduct.com/news/2011/04/20/hps-sustainable-innovation-serves-the-planet-and-profits/. Accessed 12 July 2012.

McGuire, J. B., Sundgren, A., & Schneeweis, T. (1988). Corporate social responsibility and firm financial performance. Academy of Management Journal, 31, 854–872.

Menguc, B., & Ozanne, L. K. (2005). Challenges of the 'green imperative': a natural resource-based approach to the environmental orientation – business performance relationship. Journal of Business Research, 58, 430–438.

Menguc, B., Auh, S., & Ozanne, L. (2010). The interactive effect of internal and external factors on a proactive environmental strategy and its influence on a firm's performance. Journal of Business Ethics, 94, 279–298.

Menon, A., & Menon, A. (1997). Enviropreneurial marketing strategy: The emergence of corporate environmentalism as market strategy. Journal of Marketing, 61, 51–67.

Menon, A., Menon, A., Chowdhury, J., & Jankovich, J. (1999). Evolving paradigm for environmental sensitivity in marketing programs: A synthesis of theory and practice. Journal of Marketing Theory & Practice, 7, 1–15.

Miles, M. P., & Covin, J. G. (2000). Environmental marketing: A source of reputational, competitive, and financial advantage. Journal of Business Ethics, 23, 299–311.

Mitchell, R. K., Agle, B. R., & Wood, D. J. (1997). Toward a theory of stakeholder identification and salience: Defining the principle of who and what really counts. Academy of Management Review, 22, 853–886.

Neville, B. A., & Menguc, B. (2006). Stakeholder multiplicity: Toward an understanding of the interactions between stakeholders. Journal of Business Ethics, 66, 377–391.

Nidumolu, R., Prahalad, C. K., & Rangaswami, M. R. (2009). Why sustainability is now the key driver of innovation. Harvard Business Review, 78, 56–64.

Nohria, N., & Gulati, R. (1996). Is slack good or bad for innovation? Academy of Management Journal, 39, 1245–1264.

Öberseder, M., Schlegelmilch, B. B., & Gruber, V. (2011). Why don't consumers are about CSR?: A qualitative study exploring the role of CSR in consumption decisions. Journal of Business Ethics, 104, 449–460.

Ottman, J. A. (2011). The new rules of green marketing: Strategies, tools, and inspiration for sustainable branding. San Francisco, CA: Greenleaf publishing.

Ottman, J. A., Stafford, E. R., & Hartman, C. L. (2006). Avoiding green marketing myopia: Ways to improve consumer appeal for environmentally preferable products. Environment, 48, 22–36.

Peng, Y.-S., & Lin, S.-S. (2008). Local responsiveness pressure, subsidiary resources, green management adoption and subsidiary's performance: Evidence from Taiwanese manufacturers. Journal of Business Ethics, 79, 199–212.

Ping, R. A. Jr. (1995). A parsimonious estimating technique for interaction and quadratic latent variables. Journal of Marketing Research, 32, 336–347.

Podsakoff, P. M., MacKenzie, S. B., Jeong-Yeon, L., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. Journal of Applied Psychology, 88, 879–903.

Polonsky, M. J., & Rosenberger III, P. J. (2001). Re-evaluating green marketing: A strategic approach. Business Horizons, 44, 21–30.

Pujari, D. (2006). Eco-innovation and new product development: Understanding the influences on market performance. Technovation, 26, 76–85.

Roberts, P. W., & Dowling, G. R. (2002). Corporate reputation and sustained superior financial performance. Strategic Management Journal, 23, 1077–1093.

Russo, M. V., & Fouts, P. A. (1997). A resource-based perspective on corporate environmental performance and profitability. Academy of Management Journal, 40, 534–559.

Salam, M. A. (2009). Corporate social responsibility in purchasing and supply chain. Journal of Business Ethics, 85, 355–370.

Schaefer, A. (2007). Contrasting institutional and performance accounts of environmental management systems: Three case studies in the UK water & sewerage industry. Journal of Management Studies, 44, 506–535.

Sharma, S. (2000). Managerial interpretations and organizational context as predictors of corporate choice of environmental strategy. Academy of Management Journal, 43, 681–697.

Shrivastava, P. (1995). Environmental technologies and competitive advantage. Strategic Management Journal, 16, 183–200.

Spencer, J. (2007). Big firms to press suppliers on climate. Wall Street Journal, http://online.wsj.com/public/article/SB119186622895152448.html. Accessed 12 July 2012.

Surroca, J., Tribo, J. A. & Waddock, S. (2010). Corporate responsibility and financial performance: The role of intangible resources. Strategic Management Journal, 31, 463–490.

The Observer (2003). Let's hear it for the boycott. The Observer, http://www.guardian.co.uk/business/2003/mar/02/globalisation.news. Accessed 12 July 2012

Turker, D. (2009). Measuring corporate social responsibility: A scale development study. Journal of Business Ethics, 85, 411–427.

Van Doorn, J., & Verhoef, P. C. (2011). Willingness to pay for organic products: Differences between virtue and vice foods. International Journal of Research in Marketing, 28, 167–180.

Varadarajan, R. P., & Menon, A. (1988). Cause-related marketing: A coalignment of marketing strategy and corporate philanthropy. Journal of Marketing, 52, 58–74.

Vlachos, P. A., Tsamakos, A., Vrechopoulos, A. P., & Avramidis, P. K. (2009). Corporate social responsibility: Attributions, loyalty, and the mediating role of trust. Journal of the Academy of Marketing Science, 37, 170–180.

Vorhies, D. W., & Morgan, N. A. (2005). Benchmarking marketing capabilities for sustainable competitive advantage. Journal of Marketing, 69, 80–94.

Voss, G. B., Sirdeshmukh, D., & Voss, Z. G. (2008). The effects of slack resources and environmental threat on product exploration and exploitation. Academy of Management Journal, 51, 147–164.

Waddock, S. A., & Graves, S. B. (1997). The corporate social performance-financial performance link. Strategic Management Journal, 18, 303–319.

Wagner, T., Lutz, R. J., & Weitz, B. A. (2009). Corporate hypocrisy: Overcoming the threat of inconsistent corporate social responsibility perceptions. Journal of Marketing, 73, 77–91.

Walls, J. L., Berrone, P., & Phan, P. H. (2012). Corporate governance and environmental performance: Is there really a link? Strategic Management Journal, advanced online publication.

Wood, D. J. (1991). Corporate social performance revisited. Academy of Management Review, 16, 691–718.

World Commission on Environment and Development. (1987). Our common future. Oxford: Oxford University Press.

Zhu, Q., & Sarkis, J. (2004). Relationships between operational practices and performance among early adopters of green supply chain management practices in Chinese manufacturing enterprises. Journal of Operations Management, 22, 265–289.

Figure 1 Research model

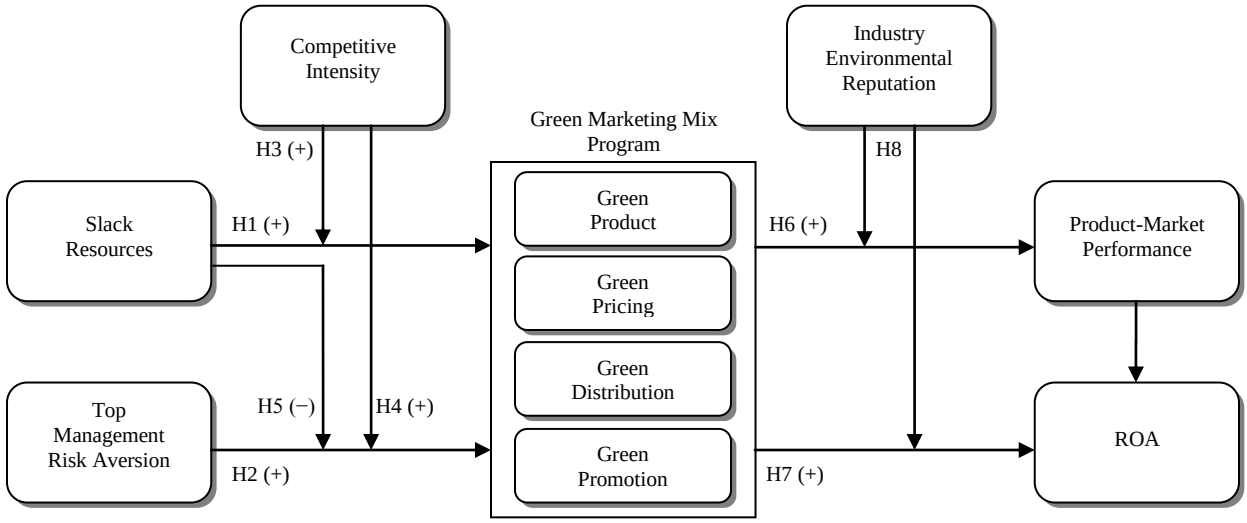

Table 1 Measures and measurement model results

Construct	Std. Loading (t-value)
Slack Resources (Objective measure based on Voss et al. (2008), using ICC Plum database)	
The level of organizational cash reserves divided by total expenses	**.95** (15.74)
Top Management Risk Aversion (α = .91; ρ = .83; AVE = .63) Please indicate how much you agree/disagree with each of the following statements. (7-point Likert scale, adapted from Jaworski and Kohli (1993))	
Our top management believes that higher financial risks are not worth taking for higher rewards	**.91** (14.56)
Our top management avoids taking big financial risks	**.92** (14.68)
Our top management encourages the development of innovative marketing strategies, knowing well that some will fail (R)	**.89** (13.85)
Green Product Program (α = .87; ρ = .81; AVE = .51) Please indicate how much you agree/disagree with each of the following statements.(7-point Likert scale, adapted from Banerjee (2001), Fraj-Andrés et al. (2009), and Menon and Menon (1997))	
We are careful when choosing the contents, ingredients, and raw materials of our products in order to be environmentally friendly	**.85** (12.64)
We are geared to designing and developing products that are friendly to the environment	**.82** (11.91)
We have significantly increased the recycling content of our packaging over the past few years	**.74** (10.42)
We tend to modify our packaging and labeling decisions to emphasize any environmental benefits	**.76** (10.83)
Green Pricing Program (α = .79; ρ = .77; AVE = .52) Please indicate how much you agree/disagree with each of the following statements.(7-point Likert scale, adapted from Banerjee et al. (2003), Menon and Menon (1997), and Menon et al. (1999))	
We build the environmental benefits and/or costs into the product price	**.74** (10.25)
We employ pricing tactics (e.g., rebates, discounts) to encourage environmental actions (e.g., reusing, recycling) by end-users	**.91** (13.93)
We charge higher prices for environmentally friendlier versions of our products	**.73** (10.10)
Green Distribution Program (α = .93; ρ = .88; AVE = .59) Please indicate how much you agree/disagree with each of the following statements. (7-point Likert scale, adapted from Banerjee et al. (2003), Menon and Menon (1997), and Menon et al. (1999))	
We team up with our channel members to develop appropriate product and packaging after-use arrangements	**.79** (11.55)
We cooperate with our channel members to make joint commitments to environmental protection	**.84** (12.70)
We cooperate with our suppliers and distributors to develop environmentally friendly marketing programs	**.88** (13.77)
We encourage our suppliers and distributors to embrace & reflect environmental responsibility and responsiveness in their activities	**.89** (14.07)
We set out clear directives and specifications for environmental responsibilities and monitor our channel members' responses	**.87** (13.59)
Green Promotion Program (α = .91; ρ = .86; AVE = .55) Please indicate how much you agree/disagree with each of the following statements.(7-point Likert scale, adapted from Banerjee et al. (2003), Fraj-Andrés et al. (2009), and Menon et al. (1999))	
We communicate the environmental friendliness of a product by positioning its features or ingredients in our branding efforts	**.80** (11.85)
We make efforts to reduce any negative impact of our marketing promotions on the natural environment	**.78** (11.27)
We emphasize the environmental aspects of our products in our advertisements	**.81** (12.05)
We highlight our commitment to environmental preservation in our corporate communications	**.87** (13.38)
Our promotions highlight and inform customers about the firm's environmental efforts	**.87** (13.26)
Product-Market Performance (α = .89; ρ = .84; AVE = .52) Please indicate the level of satisfaction with the performance of your major line of business over the past year. (7-*point scale anchored by "not at all satisfied" and "very satisfied", adapted from* Vorhies and Morgan (2005))	
Sales volume	**.69** (9.55)
Sales growth	**.81** (11.82)
Market share	**.88** (13.45)
Customer satisfaction	**.84** (12.64)
Customer retention	**.76** (10.88)
Return On Assets (ROA) (Objective measure based on Vorhies and Morgan (2005), using ICC Plum database)	
Ratio of net income to total assets at t_{+1}	**.95** (15.63)
Competitive Intensity (α = .79; ρ = .77; AVE = .52) Please indicate how much you agree/disagree with each of the following statements.(7-point Likert scale, adapted from Jaworski and Kohli (1993))	
Competition in our industry is cut-throat	**.91** (14.12)
There are many promotion wars in our industry	**.94** (14.95)
Price competition is a hallmark of our industry	**.78** (11.33)
Firm Size (Objective measure based on Waddock and Graves (1997), using ICC Plum database)	
Number of full-time employees	**.97** (16.54)
Industry Growth (Objective measure based on Bahadir et al.(2008), data from UK Office of National Statistics)	
The average of three-period year-over-year sales growth in the target firm's primary two-digit SIC code	**.95** (15.51)
Prior Return on Assets (ROA) (Objective measure based on Vorhies and Morgan (2005), using ICC Plum database)	
Ratio of net income to total assets at t_0	**.94** (14.98)
Fit Indices	
$\chi^2_{(434)}$ = 638.49, p = .001; χ^2/d.f. = 1.47; NFI = .98; NNFI = .99; CFI = .99; IFI = .99; RMSEA = .051	

Note: α = Cronbach's alpha, ρ = composite reliability, AVE = average variance extracted, and R = reversed item.

Table 2 Correlations and summary statistics

Measures	Correlations[a]											
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1. Slack Resources[b]												
2. Top Management Risk Aversion	.06											
3. Green Product Program	.27	.33										
4. Green Pricing Program	.33	.04	.32									
5. Green Distribution Program	.34	.22	.63	.54								
6. Green Promotion Program	.32	.20	.60	.49	.71							
7. Product-Market Performance	.21	.24	.38	.22	.39	.32						
8. ROA[c]	.34	.11	.29	.39	.43	.42	.35					
9. Competitive Intensity	−.05	.00	.25	.07	.11	.13	.21	.09				
10. Firm Size[d]	−.09	.05	.16	.13	.18	.19	.09	.05	−.01			
11. Industry Growth[c]	.03	.04	.06	−.01	−.05	−.05	−.12	.06	−.12	−.11		
12. Prior ROA[c]	.24	.13	.07	.18	.13	.17	.18	.42	−.09	−.03	.00	
Summary Statistics												
Number of items	1	3	4	3	5	5	5	1	3	1	1	1
Mean	.08	5.47	5.06	3.23	4.09	4.17	5.08	5.10	5.94	5.65	3.09	6.39
Standard deviation	.13	1.31	1.22	1.43	1.39	1.54	1.04	17.37	1.28	1.45	3.32	14.97

[a]Correlations greater than | ± .15| are significant at the $p < .05$ level.
[b]Ratio calculation.
[c]Percentage score.
[d]A logarithmic transformation was used to reduce the variance

Table 3 Structural model results

Structural Relationships	Estimate	t-value	Hypo-thesis	Result
Hypothesized Paths				
Slack Resources → Green Product Program	.39	5.02**	H1a (+)	Support
Slack Resources → Green Pricing Program	.46	5.07**	H1b (+)	Support
Slack Resources → Green Distribution Program	.47	5.81**	H1c (+)	Support
Slack Resources → Green Promotion Program	.45	5.72**	H1d (+)	Support
Top Management Risk Aversion → Green Product Program	.33	4.39**	H2a (+)	Support
Top Management Risk Aversion → Green Pricing Program	.00	.01	H2b (+)	No support
Top Management Risk Aversion → Green Distribution Program	.21	2.77**	H2c (+)	Support
Top Management Risk Aversion → Green Promotion Program	.19	2.52*	H2d (+)	Support
Slack Resources × Competitive Intensity → Green Product Program	.02	.30	H3a (+)	No support
Slack Resources × Competitive Intensity → Green Pricing Program	.16	1.98*	H3b (+)	Support
Slack Resources × Competitive Intensity → Green Distribution Program	.09	1.24	H3c (+)	No support
Slack Resources × Competitive Intensity → Green Promotion Program	.16	2.19*	H3d (+)	Support
Top Management Risk Aversion × Competitive Intensity → Green Product Program	−.07	−.90	H4a (+)	No support
Top Management Risk Aversion × Competitive Intensity → Green Pricing Program	.01	.17	H4b (+)	No support
Top Management Risk Aversion × Competitive Intensity → Green Distribution Program	−.03	−.37	H4c (+)	No support
Top Management Risk Aversion × Competitive Intensity → Green Promotion Program	.08	1.10	H4d (+)	No support
Top Management Risk Aversion × Slack Resources → Green Product Program	−.18	−2.48*	H5a (–)	Support
Top Management Risk Aversion × Slack Resources → Green Pricing Program	−.10	−1.27	H5b (–)	No support
Top Management Risk Aversion × Slack Resources → Green Distribution Program	−.17	−2.32*	H5c (–)	Support
Top Management Risk Aversion × Slack Resources → Green Promotion Program	−.17	−2.37*	H5d (–)	Support
Green Product Program → Product-Market Performance	.25	2.34*	H6a (+)	Support
Green Pricing Program → Product-Market Performance	.01	.07	H6b (+)	No support
Green Distribution Program → Product-Market Performance	.23	2.28*	H6c (+)	Support
Green Promotion Program → Product-Market Performance	.00	.01	H6d (+)	No support
Green Product Program → ROA	−.08	−.84	H7a (+)	No support
Green Pricing Program → ROA	.18	2.11*	H7b (+)	Support
Green Distribution Program → ROA	.15	1.76	H7c (+)	No support
Green Promotion Program → ROA	.24	2.64**	H7d (+)	Support
Direct Effects of Moderators				
Competitive Intensity → Green Product Program	.29	3.80**		
Competitive Intensity → Green Pricing Program	.08	1.04		
Competitive Intensity → Green Distribution Program	.13	1.82		
Competitive Intensity → Green Promotion Program	.18	2.41*		
Control Paths				
Firm Size → Green Product Program	.22	2.99**		
Firm Size → Green Pricing Program	.17	2.07*		
Firm Size → Green Distribution Program	.25	3.39**		
Firm Size → Green Promotion Program	.23	3.38**		
Firm Size → Product-Market Performance	−.02	−.23		
Competitive Intensity → Product-Market Performance	.12	1.41		
Competitive Intensity → ROA	.07	.85		
Industry Growth → Product-Market Performance	−.11	−1.34		
Industry Growth → ROA	.12	1.46		
Product-Market Performance → ROA	.19	2.10*		
Prior ROA→ ROA	.33	4.16**		
Fit Indices				
$\chi^2_{(431)} = 732.28$, p = .001; χ^2/d.f. = 1.70; NFI = .97; NNFI = .98; CFI = .98; IFI = .98; RMSEA = .062				

*p < .05. **p < .01.

Table 4 Split-group moderator tests

Split Group Moderator Tests				
Structural Relationships	**Estimate**	**t-value**	**Hypo-thesis**	**Result**
Dependent Variable: Market Performance			H8	Part support
Industry Environmental Reputation				
Good Environmental Reputation Group (n = 97)				
Green Product Program → Product-Market Performance	.35	2.88**		
Green Pricing Program → Product-Market Performance	−.15	−1.52		
Green Distribution Program → Product-Market Performance	.22	2.09*		
Green Promotion Program → Product-Market Performance	−.06	−.56		
Bad Environmental Reputation Group (n = 86)				
Green Product Program → Product-Market Performance	.16	1.35		
Green Pricing Program → Product-Market Performance	.29	2.28*		
Green Distribution Program → Product-Market Performance	.11	.96		
Green Promotion Program → Product-Market Performance	.24	1.99*		
Dependent Variable: ROA			H8	Part support
Industry Environmental Reputation				
Good Environmental Reputation Group (n = 97)				
Green Product Program → ROA	−.15	−1.22		
Green Pricing Program → ROA	.31	2.87**		
Green Distribution Program → ROA	−.03	−.30		
Green Promotion Program → ROA	.21	2.01*		
Bad Environmental Reputation Group (n = 86)				
Green Product Program → ROA	−.10	−1.08		
Green Pricing Program → ROA	−.08	−.71		
Green Distribution Program → ROA	.46	4.52**		
Green Promotion Program → ROA	.15	1.47		

*p < .05. **p < .01.