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Strengthening B2B brands by signalling environmental sustainability and managing customer relationships

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ABSTRACT

Resource depletion and environmental pollution concerns are forcing manufacturers to pay greater attention to environmental sustainability. This is especially so for business-to-business (B2B) manufacturing firms who intensively use natural resources in their operations and are blamed for observable impacts on the environment. Despite investments in environmental sustainability practices by B2B manufacturers, studies provide little explanation about the extent B2B manufacturers obtain a positive brand image and superior market performance through environmental sustainability. Furthermore, research has not identified organisational practices that strengthen the path from environmental sustainability to market performance. Drawing on signalling theory, the customer relationship management (CRM) literature, attitude theory, and data collected from B2B manufacturers and their customers, we show that environmental sustainability practices provide positive benefits to B2B manufacturers' brand image, which, in turn, impacts market performance. Further, effective CRM and working with business customers with positive environmental attitudes are essential boundary conditions that strengthen the path from environmental sustainability practices to market performance.

1. Introduction

Increasing pollution and consumption of resources by businesses, along with pressures from climate change have fuelled concerns about addressing environmental challenges (Albino, Dangelico, & Pontrandolfo, 2012; Gupta, Czinkota, & Melewar, 2013). These challenges, along with the greater emphasis on addressing environmental issues by governmental and environmental protection agencies, are forcing manufacturers to adopt environmental sustainability practices in their operations (Esfahbodi, Zhang, & Watson, 2016). Environmental sustainability when viewed from a business perspective concerns pollution prevention, waste minimisation, and reduction of energy and raw material consumption, aimed at diminishing the detrimental consequences of firms' activities on the environment (Antolín-López, Delgado-Ceballos, & Montiel, 2016; Gupta & Kumar, 2013). An important benefit for manufacturers in adopting environmental sustainability practices is being noted for sustainability among customers concerned about the environment (Kumar & Christodoulopoulou, 2014; Sharma, Iyer, Mehrotra, & Krishnan, 2010).

Prior research focusing on B2C markets suggests that adoption of environmental sustainability practices, such as pollution prevention and reducing the consumption of energy and natural resources induce firms to strengthen their brand equity (Chen, 2010; Chen, 2015; Olsen, Slotegraaf, & Chandukala, 2014). However, research on B2B markets focusing on the interface between environmental sustainability and branding is scant. This is surprising because, compared to B2C markets, predominant marketing activities and greater economic value of marketing activities occur in B2B markets. Moreover, B2B firms' operations require significant resource consumption and place a greater burden on the environment (Kapitan, Kennedy, & Berth, 2019; Mariadoss, Tansuhaj, & Mouri, 2011).

Research suggests that brand image can play an important role in business markets, particularly as signals of product features, attributes, and the relationship business customers expect to have with a seller (supplier) (Bendixen, Bukasa, & Abratt, 2004; Brown, Zablah, Bellenger, & Johnston, 2011). However, while it is acknowledged that firms benefit from investing resources in B2B branding (Chang, Wang, & Arnett, 2018; Österle, Kuhn, & Henseler, 2018), whether the B2B brand benefits from environmental sustainability investment and, in turn, if a brand image strengthened by following environmental sustainability practices improves market performance is unclear. Thus, the motivation for this research is to provide a deeper understanding of the benefits of environmental sustainability practices to B2B manufacturing firms regarding brand image and market performance.

While environmental sustainability practices may improve brand image and market performance, possessing internal processes that

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communicate these practices to customers and acquiring customers who possess similar views about environmental sustainability are equally important. Previous studies show that the reputation of a firm regarding environmental sustainability depends not only on the firm's operations but also its supply chain partners' views towards sustainability and their relationships with the firm (e.g., Sheth & Sinha, 2015). However, research on environmental sustainability overwhelmingly focuses on managing supplier relationships rather than considering downstream customers (e.g., Leppelt, Foerstl, Reuter, & Hartmann, 2013; Zailani, Jeyaraman, Vengadasan, & Premkumar, 2012). There has been inadequate research on whether (and to what extent) customer relationship management (CRM) contributes to the branding consequences of environmental sustainability practices. This is particularly salient for B2B manufacturers as customer relationships have never been as interactive and close as they are today (Kumar & Christodoulopoulou, 2014; Wang, Capon, Wang, & Guo, 2018). Further, previous research reports that customers with positive environmental attitudes are more interested in products produced with minimum energy consumption, thereby causing less pollution (e.g., Delmas & Montiel, 2009; Jaiswal & Kant, 2018). However, it is currently unknown if customers' favourable environmental attitudes enhance the value of the sustainability-based brand image to firms' market performance in terms of return on investment, sales growth, and profitability.

This study contributes to the signalling theory and attitude theory by marrying environmental sustainability practices and B2B branding in four specific ways. First, drawing on the signalling theory, we unpack the relationship between environmental sustainability practices and B2B manufacturers' brand image. The signalling theory is premised on the view that signals, such as a firm's values may reduce customers' risk perceptions, guide their decision-making, and add value to the firm's reputation (Brach, Walsh, & Shaw, 2018; Sharma, Davcik, & Pillai, 2016). Given this contribution, we respond to calls in the literature to explore the role of environmental sustainability concerning B2B branding and firm performance (e.g., Kumar & Christodoulopoulou, 2014; Sheth & Sinha, 2015). Second, we extend the boundaries of environmental sustainability and branding research by investigating the contingency role of CRM in connecting environmental sustainability practices to brand image, which has not been addressed in the B2B marketing literature. Premised on the signalling theory, we posit that CRM acts as a key contingency that strengthens the connection between environmental sustainability practices and brand image by reinforcing signals to business customers regarding the environmental sustainability practices of suppliers. Third, prior research examines the effects of B2B brands on various performance indicators, including customers' intentions and attitudes (Cretu & Brodie, 2007; Wuyts, Verhoef, & Prins, 2009), relational outcomes (Ghosh & John, 2009), and profitability growth of manufacturers' upstream suppliers (Worm & Srivastava, 2014). However, the contribution of B2B manufacturers' brand image on their market performance has not been fully articulated. Further, according to Worm and Srivastava (2014), research about B2B branding draws on single-informant survey data from specific industries. The contextual features of each industry may constrain the generalizability of the findings to other situational contexts (see Homburg, Klarmann, & Schmitt, 2010; Zablah, Brown, & Donthu, 2010). Using supplier and customer views across different industries, we unlock how favourable brand image affects B2B manufacturers' market performance by increasing their sales revenue and profitability. Market performance is an important indicator because it reflects the outcome of efforts to sustain a brand, providing a precise estimation of the return on B2B branding strategies. Fourth, drawing on the attitude theory, we investigate the extent to which business customers' environmental attitudes maximise the effectiveness of sustainability-based brand image on market performance. Given our focus on the contingency role of business customers' environmental attitudes, we respond to the call by Kapitan et al. (2019) to explore how sustainability practices of supply chain partners contribute to strategic environmental decisions of focal firms (i.e., B2B manufacturers in the context of this study).

2. Conceptual background and hypotheses

Manufacturers are under pressure to change their behaviours and develop environmental sustainability practices to comply with increasing demands for products produced in an environmentally sustainable manner (Blenkhorn & MacKenzie, 2017; Kumar & Christodoulopoulou, 2014; Sharma et al., 2010). Requirements to improve the reputations of firms adopting environmental sustainability strategies emerge from the government and customer concerns about environmental pollution, resource depletion, and the burden of waste generation (Gupta & Kumar, 2013; Sheth & Sinha, 2015). For example, Forbes (2018) list of The Best 100 Corporate Citizens indicates that firms committed to environmental sustainability, such as Caterpillar and General Motors, benefit from improved reputation.

Building on Varadarajan (2017) we define environmental sustainability as an organisational activity directed at reducing pollution and increasing the efficient use of energy and other resources to diminish the detrimental effects of firms' activities on the environment. This definition denotes that environmental sustainability manifests in environmental remediation and economic efficiency. Environmental remediation regards reducing air emissions, wastewater, solid waste, consumption of hazardous materials, and environmental accidents, whereas economic efficiency concerns the efficient utilisation of energy and other resources (Dubey, Gunasekaran, & Ali, 2015; Zhu, Geng, & Lai, 2010). Addressing environmental sustainability challenges is important for B2B manufacturers operating in sectors, such as energy and chemicals, and manufacturers of essential materials such as steel, cement, and plastics due to their significant environmental impact (pollution, toxic waste, and industrial accidents) and economic relevance (high resource and energy consumption). Thus, B2B manufacturers often focus on (or start with) the protection of the environment and thoughtful consumption of natural resources in their journey towards sustainability. Furthermore, given the pressure to be more sustainable, manufacturers must integrate the implementation of environmental sustainability practices in their operations with marketing activities to increase public awareness and competitive advantage (Kumar & Christodoulopoulou, 2014; Sharma et al., 2010). The concerted efforts of operations and marketing can influence stakeholders' perception of the firm and its products and associate the corporate brand with values, such as environmental stewardship and morality (Sheth & Sinha, 2015).

Recent studies on sustainability identify multiple domains of research in operations and marketing. An analysis of studies on sustainability in operations research (Fig. 1) examines the antecedents of environmental sustainability in the field of operations management. This includes how firms pursue environmental sustainability by focusing on inter-organisational collaboration (e.g., Albino et al., 2012), stakeholder pressures and involvement (e.g., Sarkis, Gonzalez-Torre, & Adenso-Diaz, 2010), rivals' sustainability-related activities (e.g., Hofer, Cantor, & Dai, 2012), top management commitment (Gattiker & Carter, 2010), organisational innovation (e.g., Moyano-Fuentes, Maqueira-Marín, & Bruque-Cámara, 2018), and sustainable supply chain management (e.g., Zailani et al., 2012). Another domain within operations research on sustainability includes environmental sustainability practices as a part of the overall operation strategy to improve outcomes at the firm level, such as profitability and market share (e.g., Gotschol, De Giovanni, & Vinzi, 2014; Jacobs, Singhal, & Subramanian, 2010). More recently, research on B2C markets investigates the customer-related implications of environmental sustainability, including issues, such as customer loyalty and purchase intention (Chen, 2015; Choi & Ng, 2011).

In contrast, marketing research on sustainability focuses on corporate social responsibility (CSR) or green marketing. This domain of research shows that firms integrate sustainability into their business strategies to influence customer and branding-related outcomes. The

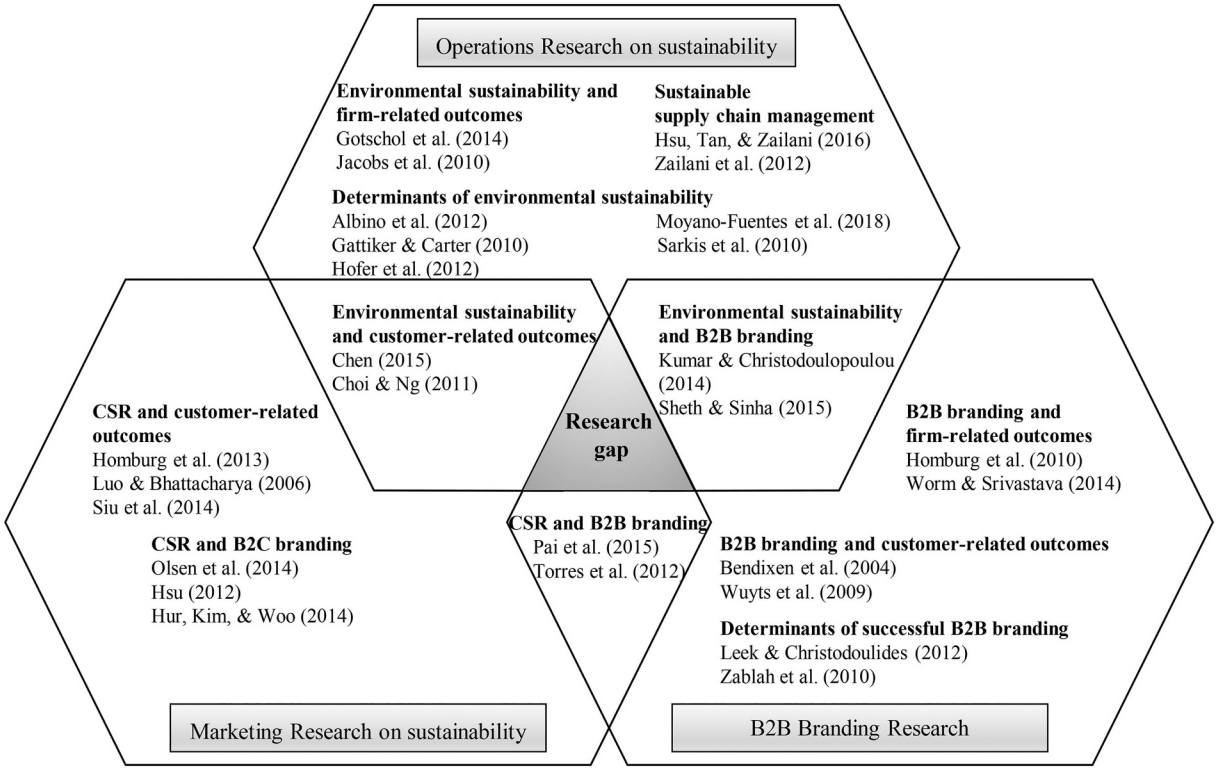

Fig. 1. Overview of the empirical research.

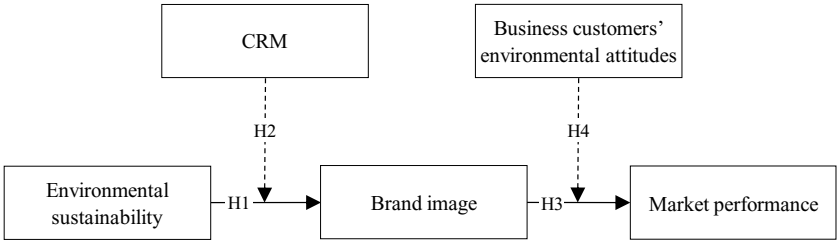

Fig. 2. Research framework.

focus of these works includes customer satisfaction (Luo & Bhattacharya, 2006), customer loyalty (Homburg, Stierl, & Bornemann, 2013), customer-firm identification (Siu, Zhang, & Kwan, 2014), and brand equity in the context of B2C (Hsu, 2012; Olsen et al., 2014). Few studies addressing the connection between sustainability and branding has focused on the B2C context. Limited research has examined the link between CSR and B2B branding (e.g., Pai, Lai, Chiu, & Yang, 2015; Torres, Bijmolt, Tribó, & Verhoef, 2012). However, focusing only on CSR, they have not considered the core nature of environmental sustainability regarding efficient consumption of natural resources and environmental remediation.

Furthermore, as shown in Fig. 1, the empirical research on B2B branding mainly focuses on identifying the implications of B2B brands for organisational purchase decisions (e.g., Bendixen et al., 2004; Wuyts et al., 2009) or firm performance (e.g., Homburg et al., 2010; Worm & Srivastava, 2014). However, reviewing the B2B branding literature indicates that despite the acknowledged role of branding in business markets (Zablah et al., 2010), the literature provides little clarity on critical drivers of brand performance in B2B markets (Leek & Christodoulides, 2012; Sheth & Sinha, 2015).

The overlapping areas of Fig. 1 represent empirical research only bridges two out of the three research domains. The area where the three bodies overlap shows that no research has addressed how firms' environmental sustainability practices promote their brand image in the B2B context. Only more recently, marketing researchers have begun to evaluate environmental sustainability as a B2B branding tool (e.g., Kapitan et al., 2019; Kumar & Christodoulopoulou, 2014; Sheth & Sinha, 2015). While prior research on sustainability branding alludes to the fact that brand differentiation through environmental sustainability leads to competitive advantages by influencing stakeholder perceptions of product evaluations, it has not addressed whether the investment in environmental sustainability pays off for B2B firms in promoting intangible marketing assets, especially their brand image as a major asset. This is pertinent in B2B settings where the smaller number of customers in the market, product complexity, and variation in quality characteristics underlie the importance of brand image as a cue of purchase decision-making.

Our conceptual model (Fig. 2) is grounded in the signalling theory. Underpinning the signalling theory is the premise that a firm's value or its brand image can communicate (signal) a firms' credibility or significant attributes that might be less visible or unknown to business partners (Brach et al., 2018; Sharma et al., 2016). By signalling specific characteristics usually hidden from stakeholders, a firm can differentiate itself from competitors (Ruhnke & Gabriel, 2013). Signals can distinguish firms if they are costly for competitors to imitate and provide added value for customers (Connelly, Ketchen, & Slater, 2011). Conveying such signals reduce information asymmetry in the market and help customers know which firms are genuinely committed to the values and credence attributes they claim (Brach et al., 2018; Connelly et al., 2011).

Prior research shows that the signalling theory can provide insights into organisational activities about environmental sustainability (e.g., Connelly et al., 2011; Kuzey & Uyar, 2017). Although it is often difficult for customers to evaluate the extent to which a firm pursues environmental sustainability practices (Connelly et al., 2011; Hahn & Kühnen, 2013), this is not an issue in B2B markets due to the close relationships between firms and business customers, enabling customers to actively monitor and measure firms' performance against their expectations (Narayandas & Rangan, 2004; Stock & Zacharias, 2013). Accordingly, when B2B manufacturers invest in environmental sustainability practices such as efficient resource consumption and pollution reduction, they send observable signals to their partners in the supply chain about their commitment and respect of the environment and natural resources (Connelly et al., 2011; Ruhnke & Gabriel, 2013).

2.1. Environmental sustainability and brand image

Brand image is a set of connected information about a brand in the customers' mind that form the customers' perception of a brand (Keller, 1993). Firms develop their brand image by communicating the distinguishing features and attributes related to both the firm and its products to differentiate them from others (Campbell, Papania, Parent, & Cyr, 2010). By adopting environmental sustainability practices, a firm may signal and project its commitment to the environment and, thus, establish a credible, environmentally friendly brand image in the customers' mind (Lai, Wong, & Lam, 2015). When a firm effectively communicates its commitment to implementing environmental sustainability practices, it can improve its reputation among stakeholders, which strengthens brand image (Blenkhorn & MacKenzie, 2017). The effect of implementing environmental sustainability practices on brand image in B2B relationships happens beyond normal marketing activities. In many instances, a firm and its customers share their operations (Stock, 2006). This close working relationship between the customer and the manufacturing firm allows the customer to witness when the firm undertakes environmental sustainability practices as part of its operations. Thus, approving the credibility of messages by the firm confirms the commitment of the firm in deploying resources and capabilities to protect the environment. Detecting suppliers' environmental sustainability practices through close business relationships sends a clear signal to customers, allowing them to develop a strong, favourable, and authentic connection between the firm and the brand image the firm has developed in the market (Gupta et al., 2013).

Further, many firms may engage in designing messages that promote their commitment to environmental sustainability practices (Gershoff & Frels, 2015; Olsen et al., 2014). However, communicating environmental sustainability and implementing its practices are fundamentally different. Customers can differentiate between firms who merely advocate environmental sustainability in words (sometimes referred to as engaging in greenwashing) from those who practice environmental sustainability in their daily operations. Firms that practice environmental sustainability can signal their true commitment to the environment and increase customers' trust in their claims and practices (Blenkhorn & MacKenzie, 2017; Homburg et al., 2013). In B2B markets where a small number of players operate, a firm's reputation spreads quickly for being reliable, honest, and trustworthy in protecting the environment (Bhattacharya, Korschun, & Sen, 2009; McWilliams & Siegel, 2001). Thus, firms can distinguish themselves in the mind of customers and develop a more positive brand image, suggesting the following.

H1. Environmental sustainability practices positively affect a manufacturers' brand image as perceived by business customers.

2.2. The moderating role of CRM

While we acknowledge the connection between environmental sustainability and brand image, there are factors that may affect this relationship, especially how well a firm deploys its customer relationship management (CRM) practices. This is especially true in B2B settings where the relationships are unique and powerful and managing them is a priority. CRM refers to a "firm's ability to identify attractive customers and prospects, initiate and maintain relationships with attractive customers, and leverage these relationships into customer level profits" (Morgan, Slotegraaf, & Vorhies, 2009, pp. 286).

Business customers concerned about environmental sustainability issues look for signals about firms who engage in environmental sustainability practices. When firms have strong CRM capability, this information is communicated with current and potential business customers more clearly and consistently. Furthermore, via effective CRM capability, firms can identify and target attractive customers and establish a dialogue with them to relief any uncertainty about application of environmental sustainability practices in their operations (Stein, Smith, & Lancioni, 2013). Strong CRM capability allows the firm to bridge relationship gaps by establishing a reciprocal dialogue with customers (Hendricks, Singhal, & Stratman, 2007). Dialogue allows the firm to provide more information, reinforce messages to current customers, and send clearer messages to potential customers about environmentally friendly products and practices (cf., Swani, Brown, & Milne, 2014). Given that B2B products tend to be more complex and technical, these dialogues and closer relationships enable the firm to send more observable and noticeable signals to customers about environmental sustainability practices. The application of environmental sustainability practices in firms' operations supported by effective CRM capabilities are complementary, enabling customers to better capture and absorb signals about firms' environmental sustainability practices. Therefore, the interaction effect of CRM and implementing environmental sustainability practices in operations strengthens the impact of signals and improves customer trust and the reputation of the firm about commitment to environmental sustainability practices. Thus, B2B firms can develop a stronger brand association that enhances brand image in both current and potential customers' mind, thereby suggesting the following.

H2. The stronger a B2B firms' CRM capability, the stronger the relationship between environmental sustainability practices and brand image.

2.3. Brand image and market performance

In the brand management literature, a key premise is that a favourable, positive, and unique brand image enables a firm to obtain a strong market position that, in turn, enhances economic returns (Aaker, 1991; Homburg et al., 2010; Merrilees, Rundle-Thiele, & Lye, 2011). Brand image can signal invisible organisational attributes that indicate its trustworthiness, credibility, and values to the customers (Connelly et al., 2011; Kim & Hyun, 2011). The signals sent by positive brand images allow customers to understand the value they may obtain from the consumption of the branded product (Kim & Hyun, 2011). This is so because B2B brand image is mainly based on the firm's most valuable assets, which link the brand with customers' preferred attributes (see Aaker, 1996; Davis, Golicic, & Marquardt, 2008). As noted by Mariadoss et al. (2011), the brand image of firms to whom environmental sustainability is a central value can act as a scarce, valuable, and inimitable source of competitive advantage. Thus, a positive brand image conveys reputation and can serve as a signal for the firm's positive characteristics.

Additionally, in B2B markets where product complexity and the high monetary value of purchases increases purchase risk, a positive brand image can reduce the functional risk for business customers. Customers may assume that brands with a good image are purchased by other customers and will not result in any competitive disadvantage (Aaker, 1991). Brand image may also benefit customers by minimising their information costs and lowering their perceived risk of purchase.

When customers perceive these benefits, they will be encouraged to buy more, repeat their purchase, and avoid switching to competitors (Homburg et al., 2010; Srivastava & Sharma, 2013). Therefore, we expect that a B2B manufacturer with a positive brand image holds a prominent market position and strong reputation, thereby driving sales to ensure higher market performance. It suggests the following.

H3. Brand image positively affects market performance.

2.4. The moderating role of customers' environmental attitudes

This study considers the impact of customers' environmental attitudes as essential to strengthening the relationship between a B2B firm's brand image and its market performance. According to Ajzen (1991), attitudes towards a particular behaviour gauges a person's evaluation of the behaviour and emerges from beliefs about the consequences of its performance. Thus, we define business customers' environmental attitudes as the degree to which key decision-makers in customer firms have a favourable or unfavourable evaluation of environmental sustainability.

Customers' environmental attitude has been identified as a vital determinant of their environmental sustainability intentions and reaction to businesses (e.g., Collins, Steg, & Koning, 2007; Pickett-Baker & Ozaki, 2008). For example, Jaiswal and Kant (2018) note that customers with favourable environmental attitudes prefer to make more environmentally friendly purchases. In a similar vein, B2B research explains that customer firms enhance their environmental reputation by leveraging the satisfactory environmental sustainability performance of their upstream suppliers (e.g., Delmas & Montiel, 2009; Sancha, Wong, & Thomsen, 2016). In close working relationships, which are common in B2B markets, customer firms are more likely to compare their characteristics with supplier firms (i.e., brand and its image) and maintain or adjust their decisions towards their relationships with suppliers on the basis of commonality or match (congruency). It is acknowledged that business customers seek firms with similar mindsets to better meet their requirements (Wadhwa, Saxena, & Chan, 2008). Therefore, when primary decision-makers in business customer firms value environmental sustainability, they are more likely to discover and purchase from firms that have more positive image regarding environmental sustainability. Thus, we argue that B2B manufacturing firms with a positive sustainability-based brand image achieve superior sales revenue and profitability in a business relationship with customers holding favourable environmental attitudes. It suggests the following.

H4. The more favourable business customers' environmental attitudes, the stronger the relationship between brand image and market performance.

3. Methodology

3.1. Sample and context

Data for this research was collected in 2017 over three months through a survey of firms operating in the manufacturing sector. We chose the manufacturing sector because, firstly, it is a crucial source of economic growth, and, secondly, it creates significant environmental challenges concerning pollution and intensive use of resources (Freire, 2018; Gunasekaran & Spalanzani, 2012). Moreover, in focusing on our specific sector, we also identified a specific country setting – Iran as one of the Next Eleven (N-11) emerging countries[1] (Heirati & O'Cass, 2016; Wilson & Stupnytska, 2007) and part of the Middle East and North Africa (MENA) countries. While the role of branding in emerging countries is vital for seizing market opportunities and obtaining competitive advantages, the prevailing frame of reference for research on B2B branding still has an overwhelming emphasis on developed countries (Nyadzayo, Matanda, & Rajaguru, 2018). Further, with rapid industrialisation, the significance of controlling pollution and resource depletion, along with tighter environmental laws and policies from governments, are pushing firms in emerging countries to adopt environmental sustainability practices into their core business strategies (Esfahbodi et al., 2016). Sheth and Sinha (2015) note that inadequate infrastructure and the socio-economic conditions in emerging countries place greater responsibilities on firms for market and regional development. Thus, our industry-country focus supports the imperative to understand how B2B firms operating in emerging countries (e.g., N-11 and MENA) can build strong brands and increase market presence through environmental sustainability investment.

The N-11 countries have a high potential of moving into the world's top-20 economies by 2025 (Martin, 2012). These countries can also bridge between developed and developing (or underdeveloped) countries (Kvint, 2009). Therefore, as the world pushes for brands that show higher commitment to environmental sustainability, what happens in the N-11 emerging countries can be seen as examples of, or a litmus test of what may happen to countries advancing behind them. It may show the best way to pursue environmental sustainability in the manufacturing sector to create brands with favourable images and compete in an increasingly competitive global market without sacrificing the environment. Thus, our country and industry setting provide a suitable laboratory for testing our theory.

3.2. Sample characteristics and data collection

From a directory of firms provided by the Iran General Chamber of Commerce, we identified 310 B2B manufacturing firms. We contacted the CEOs of the firms and provided an overview of the research, requesting their firms' participation. Upon agreement, we asked them to provide a list of production managers and sales managers. These key informants have intimate knowledge and rich insights into various processes within their firms especially the issues being studied. Out of 310 firms, 140 firms agreed to participate, and we obtained a total of 490 contacts of production managers and 450 sales managers. Sales managers were asked to answer questions on their key business customers located across the country and provide customers' contact information (contacts were provided for a total of 650 business customers). Once sales managers returned their completed surveys, primary decision-makers in business customer firms (e.g., senior purchasing managers) were contacted. Our dyadic data (i.e., supplier firm and business customer firm) structure minimises concerns over single-source bias and strengthens our theory testing. Coded surveys were used to allow for matching data at the firm level.

We followed Yu, Jacobs, Salisbury, and Enns (2013) guidelines for obtaining high-quality data from participants. Before distributing the surveys, we contacted the participants through email and telephone to explain how their contacts were obtained and obtained their initial agreement to participate. We also offered participants a summary of the findings to encourage participation. The mailed surveys were accompanied by a cover letter explaining the purpose of the research. Additional follow-up calls were made as needed to motivate participants to return surveys and clarify any ambiguities. We assessed the quality of the respondents who returned their surveys regarding their knowledge about the firm's business processes and their confidence to complete the survey by providing two check questions on the scale of 1 to 5 (see Siahtiri, 2018). Following O'Cass, Heirati, and Ngo (2014), any respondent whose score was below four on any of the two items were dropped from further analysis. Overall, from 140 manufacturing firms, we received 1004 usable surveys, which included 370 production

[1] According to Rauch, Dallasega, and Matt (2016), emerging countries comprise up-and-coming nations from Latin America, Africa, Asia, and Eastern Europe. Some of these nations are described by the acronyms BRICS (Brazil, Russia, India, China, and South Africa), N-11 (Next Eleven), RDE (Rapidly Developing Economies), and MENA (Middle East and North Africa).

managers (a response rate of 75.5%), 346 sales managers (a response rate of 76.9%), and 288 tier-one business customers (a response rate of 44.3%). The analysis of the respondents indicated that firms in the petrochemical industry accounted for 32.7% of the participants, iron and steel, 15.5%, cement, 13.6%, tire and rubber, 13.6%, oil and gas industry, 7.3%, electronics, 7.3%, and others, 10%.

We tested the potential threat of non-response bias in two ways (see Wong, Wong, & Boon-itt, 2013). First, we conducted a *t*-test to compare the responding and non-responding firms regarding firm attributes (e.g., firm size, ownership status, and age) and found no statistical difference between the answers of respondents and non-respondents. Second, no statistically significant differences were detected between two groups of early and late responses across firm attributes, suggesting that non-response bias is not a major concern. Since we collected data from multiple informants in each manufacturing firm (we had no fewer than two production managers and two sales managers in each firm), concern regarding common method bias was minimal (Slotegraaf & Atuahene-Gima, 2011). Nevertheless, to endure that common method bias is not present, participants were informed about the confidentiality of their responses (Slotegraaf & Atuahene-Gima, 2011) and that only aggregated results would be used in published research. To diminish information apprehension, participants were also advised that no answer to the survey questions are necessarily right or wrong (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

3.3. Measures

We used existing measures from the literature and only where necessary developed new items. In developing all three surveys, we followed the double-translation method; the surveys were first prepared in English, translated into Persian, and back-translated into English using certified independent translators (Slotegraaf & Atuahene-Gima, 2011). Then, a pretest of the surveys with a sample of managers in Iran was undertaken to ensure readability, flow, and clarity of the surveys. We asked participants to not only answer the questions but also provide feedback about the design and wording (Zhao, Feng, & Wang, 2015). The pretest resulted in minor modifications of some items and the surveys' structure to improve clarity.

As shown in Table 1, the production managers survey (A) contained eleven items measuring environmental sustainability adapted from Dubey et al. (2015) and Zhu et al. (2010). The sales managers survey (B) contained seven items measuring CRM capability with the focus on environmental sustainability adapted from Morgan et al. (2009) and four items measuring market performance derived from Vorhies and Morgan (2005). The business customers survey (C) contained five items measuring brand image derived from Aaker (1996) and Sheng and Pan (2009) and seven items measuring environmental attitudes derived from Cordano and Frieze (2000). All multi-item measures relied on five-point Likert scales.

We controlled for firm size (log number of full-time employees), firm age (log number of years in business), and length of the business relationship (log number of years the customer has related with the firm). We controlled for firm size because large firms may have more resources for efficient dissemination of signals regarding their environmental sustainability practices (Lai et al., 2015). Firm age and relationship length were controlled for because among firms those that are younger and those with shorter working relationships with customers may face a liability of newness due to a shorter market track record (Homburg et al., 2013; Liu, Wong, Tseng, Chang, & Phau, 2017).

3.4. Measurement properties

We checked the factor loadings of all items with their respective constructs, and all loadings were greater than the 0.50 threshold (Bagozzi & Yi, 1988), indicating the reliability of individual items. The reliability of each construct was evaluated with composite reliability.

Table 1
Measurement items and validity assessment.

Constructs and items	Loading
Production managers (Survey A)	
Environmental sustainability[a] *(CR = 0.95, AVE = 0.65)*	
Over the past year, our firm has…	
Reduced air emissions.	0.77
Reduced wastewater.	0.82
Reduced solid wastes.	0.86
Decreased consumption for hazardous/ harmful/ toxic materials.	0.83
Decreased frequency of environmental accidents.	0.86
Improved firm's environmental situation.	0.76
Decreased raw materials usage.	0.60
Decreased energy consumption.	0.73
Decreased fees for waste treatment.	0.86
Decreased fees for waste discharge.	0.88
Decreased fines for environmental accidents.	0.83
Sales managers (Survey B)	
CRM[b] *(CR = 0.90, AVE = 0.57)*	
Our firm focuses on…	
Getting target customers to try our products.	0.79
Identifying and targeting attractive customers.	0.85
Establishing a "dialogue" with target customers.	0.62
Maintaining loyalty among attractive customers.	0.73
Maintaining positive relationships when migrating unattractive customers.	0.60
Focusing on meeting target customers' long-term needs to ensure repeat business.	0.87
Enhancing the quality of relationships with attractive customers.	0.78
Market performance[c] *(CR = 0.96, AVE = 0.86)*	
Over the past year, compared to the previous year…	
Firm's profitability has been	0.93
Return on investment (ROI) has been	0.92
Return on sales (ROS) has been	0.95
Financial goals reached have been	0.91
Business customers (Survey C)	
Environmental attitudes[b] *(CR = 0.88, AVE = 0.52)*	
I personally believe…	
Environmental sustainability is not necessary to achieve high levels of environmental and economic performance (R).	0.75
Environmental sustainability is an important component of a firm's management strategy.	0.83
Environmental sustainability is not an important component of manufacturing management (R).	0.58
Environmental sustainability should be seen as an important component of a firm's bottom line.	0.70
Environmental sustainability is an ineffective management strategy (R).	0.75
Environmental sustainability improvement is the most desirable waste management goal.	0.68
Most environmental sustainability projects are worthwhile.	0.72
Brand image[b] *(CR = 0.89, AVE = 0.62)*	
In thinking about this supplier and its commitment to environmental sustainability…	
We trust this firm.	0.77
We admire this firm.	0.72
The firm is credible.	0.78
This firm has a good image.	0.83
This firm has a good reputation.	0.84

Notes: "R" indicates reverse coding; CR = composite reliability; AVE = average variance extracted

[a] The scale format for each of these measures was 1 = "Not at all" and 5 = "Significantly".

[b] The scale format for each of these measures was 1 = "Strongly disagree" and 5 = "Strongly agree".

[c] The scale format for each of these measures was −2 = "Much worse" and + 2 = "Much better".

As presented in Table 1, all composite reliabilities ranging from 0.88 to 0.96, were above the recommended level of 0.70 (Nunnally, 1978), demonstrating reliability. We checked the average variance extracted (AVE) values of all constructs to assess the convergent validity and

Table 2
Descriptive statistics and correlations among variables.

Variables	CR	M	SD	1	2	3	4	5	6	7	8
1. Environmental sustainability	0.95	3.16	0.65	**0.81**							
2. CRM	0.90	3.80	0.42	0.16	**0.75**						
3. Brand image	0.89	4.00	0.45	0.41**	0.10	**0.78**					
4. Customers' environmental attitudes	0.88	3.94	0.53	0.35**	0.02	0.34**	**0.72**				
5. Market performance	0.96	3.59	0.65	0.17	0.13	0.39**	0.14	**0.92**			
6. Firm size	N/A	N/A	N/A	−0.02	−0.06	0.00	−0.13	0.06	N/A		
7. Firm age	N/A	N/A	N/A	0.00	−0.03	0.02	−0.09	−0.10	0.06	N/A	
8. Length of relationship	N/A	N/A	N/A	0.06	−0.09	0.09	0.08	−0.07	0.03	−0.10	N/A

Notes: M = mean; SD = standard deviation; the square root of AVE is on the diagonal (where appropriate).
** indicates that correlation is significant at the 0.01 level (two-tailed).
Bold values indicates the square root of AVEs are on the diagonal.

found that they exceeded the benchmark of 0.50, indicating acceptable convergent validity (Fornell & Larcker, 1981).

The square root of AVE of each construct was assessed against the corresponding correlation between the constructs to establish discriminant validity. All square roots of the AVE values were greater than the respective correlations (Fornell & Larcker, 1981). Further, discriminant validity is evident when the scores of individual correlations (the off-diagonal entries) are smaller than their respective reliabilities (Patterson & Smith, 2003). Table 2 shows that no individual correlations were higher than their respective reliabilities, indicating satisfactory discriminant validity. Means, standard deviations, correlations between constructs, and square root of AVE are reported in Table 2. Altogether, the results show that the measures possess acceptable reliability and validity.

Since the data were obtained from multiple productions and sales managers within each firm, respondents' individual scores on each construct were aggregated, and the mean response for each item was computed (Keller, 1986). We also used data aggregation for business customers as we obtained data from multiple customers for each firm. The index of the interrater agreement score r_{wg} was computed to assess whether the aggregation of multiple respondents related to the same firm was appropriate (James, Demaree, & Wolf, 1984). The r_{wg} values for all variables exceeded the cut-off value (0.70) (Burke, Finkelstein, & Dusig, 1999), indicating that data aggregation is appropriate.

Concerning the potential bias of endogeneity, prior research indicates possible sources, such as measurement error, omitted variables, and simultaneity (Antonakis, Bendahan, Jacquart, & Lalive, 2014; Wang, Li, & Chang, 2016). We minimised measurement errors by collecting data from multiple informants (Wang et al., 2016). Further, we divided dependent and independent variables and moderators across different surveys so that different participants could provide responses to some constructs and not responding others (see Wong et al., 2013). The potential threat of endogeneity due to omitted variables was reduced by choosing relevant control variables (see Stock, Zacharias, & Schnellbaecher, 2017). Further, according to Antonakis et al. (2014), the issue of simultaneity presents itself when independent and dependent variables simultaneously affect each other. The literature supports the view that the adoption of environmental sustainability practices is critical in strengthening a firm's brand equity (e.g., Kumar & Christodoulopoulou, 2014; Sheth & Sinha, 2015). Therefore, we are confident that the path is from environmental sustainability to brand image and not vice versa. Thus, endogeneity is not a major concern in this research.

4. Results

Multiple regression analysis was performed for both direct and moderation effects. Before testing the hypotheses, all indicators were mean-centred around the midpoint of their scales to mitigate the potential problem of multicollinearity (Algina & Moulder, 2001). Further, assessment of the variance inflation factors (VIFs) revealed that the maximum VIF reached a value of 1.52, substantially below the cut-off value of 10 (Mason & Perreault, 1991), indicating no multicollinearity concerns.

To test the hypothesised relationships, we employed the principles of hierarchical moderated regression analysis and developed different models to test the proposed relationships in the research model (see Boso, Adeola, Danso, & Assadinia, 2019; Zhao et al., 2015). Table 3 presents the results of the stepwise development of the full regression analysis. In the first model, we tested the impact of three control variables (firm size, firm age, and length of relationship). The results indicate that no control variables are significantly related to brand image. In the second model, we tested H1 which proposed environmental sustainability practices positively affect a manufacturer's brand image. The results provide support for this hypothesis ($\beta = 0.58$, $t = 5.50$, $\rho < 0.01$).

We tested the moderation effect of CRM (H2) by adding CRM and its interaction with environmental sustainability to run models 3 and 4, respectively. We computed the interaction term by multiplying CRM and environmental sustainability. The result supports H2 ($\beta = 0.24$, $t = 2.10$, $\rho < 0.05$), suggesting that CRM capability strengthens the positive relationship between environmental sustainability practices and brand image. PROCESS (Hayes, 2013) and floodlight analysis proposed by Johnson and Neyman (1936) were used to identify the area of significance and ensure that the results of the hierarchical regression modelling stand. Floodlight analysis is appropriate as CRM is a continuous variable (Spiller, Fitzsimons, Lynch, & McClelland, 2013). The analysis revealed that the moderation effect of CRM is significant for any value of CRM more than 3.68 (68.3% of values, $\beta = 0.24$). The moderation relationship presented in Fig. 3 (A) demonstrates that when a manufacturing firm extensively engages in CRM practices, the effect of environmental sustainability on brand image is stronger.

Models 5 and 6 were developed to test H3 where we proposed that brand image positively affects market performance. Model 5 reveals that no control variables are significantly related to market performance, and the results in Model 6 show that brand image is positively related to market performance. Thus, H3 is supported ($\beta = 0.41$, $t = 3.31$, $\rho < 0.01$). Finally, to test the moderation effect of customers' environmental attitudes (H4) the same approach to test H2 was adopted. We employed customers' environmental attitudes and its interaction term with the brand image to run Models 7 and 8, respectively. The result shows that when primary decision-makers in business customer firms have favourable environmental attitudes, the positive relationship between brand image and market performance is strengthened ($\beta = 0.26$, $t = 2.19$, $\rho < 0.05$). Thus, H4 is supported. Further, floodlight analysis revealed a significant positive effect of brand image on market performance for all values of customers' environmental attitudes more than 3.52 (71.1% of participants, $\beta = 0.26$). Fig. 3 (B) shows that when business customers have more positive environmental attitudes, the effect of brand image on market

Table 3
Results of regression analysis.

	Brand Image				Market Performance			
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Control variables								
Firm size	0.05	0.06	0.07	0.08	0.07	0.09	0.05	0.05
Firm age	0.03	0.05	0.04	0.04	0.04	0.05	0.01	0.04
Length of relationship	0.07	0.06	0.06	0.05	−0.02	0.01	0.04	0.02
Main effects								
Environmental sustainability		0.58** (5.50)	0.54** (5.10)	0.56** (5.27)				
Brand image						0.41** (3.31)	0.34** (2.60)	0.35** (2.62)
Moderation effects								
CRM			−0.10 (−1.08)	−0.08 (−0.76)				
Environmental attitudes							0.17 (1.20)	0.12 (1.10)
Environmental sustainability × CRM				0.24* (2.10)				
Brand image × Environmental attitudes								0.26* (2.19)
R^2	0.03	0.38	0.43	0.51	0.02	0.20	0.23	0.25
Adjusted R^2	0.00	0.34	0.38	0.46	0.00	0.15	0.16	0.21
ΔR^2		0.35	0.05	0.08		0.18	0.03	0.02

* and ** indicate that correlation is significant at the 0.05 and 0.01 level, respectively; t-values are in parentheses.

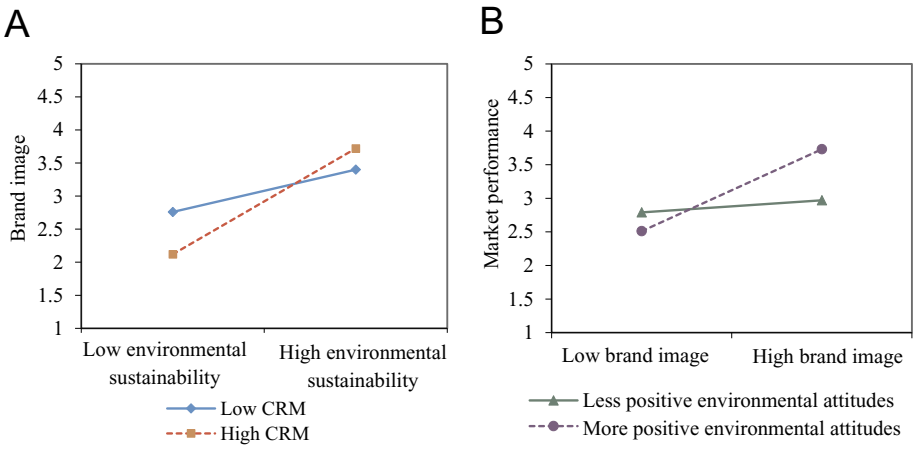

Fig. 3. The simple slope plots to test H2 and H4.

performance is enhanced.[2]

5. Discussion and implications

Manufacturers are now under mounting pressure to invest in environmental sustainability practices to protect the environment and use resources more efficiently (Esfahbodi et al., 2016). The literature supports the view that B2B customers are placing greater emphasis on purchasing from brands that show higher concern for environmental sustainability (Kumar & Christodoulopoulou, 2014; Sharma et al., 2010). However, the literature is silent on the extent that investment in environmental sustainability benefits B2B firms to strengthen their intangible marketing assets, especially brand as a major marketing asset. This study identifies the extent to which B2B manufacturing firms pursuing environmental sustainability improves their brand image and market performance. Given our focus on environmental sustainability, brand image, and market performance, we also examined the contingency roles of CRM and business customers' environmental attitudes. Our theoretical framework is validated through our methodology, which includes the perspectives of multiple stakeholders (i.e., B2B manufacturing firms [multiple business unit managers] and their business customers) from different manufacturing industries. Our findings offer several theoretical and managerial implications.

5.1. Theoretical implications

First, this research contributes to the literature on the nexus between operation research on environmental sustainability and marketing research on B2B branding by demonstrating that environmental

[2] Additional analysis was performed to see if brand image mediates the relationship between environmental sustainability and market performance. Following Baron and Kenny (1986), when the mediator is not considered, environmental sustainability has a positive and significant relationship with market performance ($\beta = 0.21, \rho < 0.05$). The main analysis indicates a positive and significant relationship between environmental sustainability and the mediator, brand image ($\beta = 0.58, \rho < 0.01$) and between brand image and market performance ($\beta = 0.41, \rho < 0.01$). Finally, the results reveal that when brand image is entered to the regression analysis, environmental sustainability no longer significantly influence market performance ($\beta = 0.11$, n.s.), indicating that brand image fully mediates the relationship between environmental sustainability and market performance.

sustainability is critical to generating a positive brand image for business customers, thus addressing a central research gap in the B2B marketing literature (Kumar & Christodoulopoulou, 2014; Sheth & Sinha, 2015). Extending signalling theory, our research findings unpack the value of environmental sustainability in building a positive brand image and improving market performance of manufacturers operating in industrial markets. Existing marketing research building on the signalling theory tends to concentrate more specifically on the central concept of the brand as a strong signal (e.g., Sharma et al., 2016). However, explaining how certain organisational attributes strengthen the B2B brand and its perception in the market is missing. This study addresses this limitation and demonstrates that environmental sustainability functions as a signalling instrument to effectively communicate a firm's values and the creditability of its environmental sustainability practices to its customers. This is especially important in industries where environmental sustainability issues are an increasingly high priority and a growing number of business customers publicly indicate their environmental concerns by purchasing from brands with a higher commitment to environmental sustainability.

Second, while existing research focuses on the role of customers in improving firms' sustainability performance (e.g., de Sousa Jabbour, Vazquez-Brust, Jabbour, & Latan, 2017; Delmas & Montiel, 2009), how customer relationships are best managed to improve a firm's brand through its environmental sustainability efforts is unclear. Unpacking the contingency role of CRM capabilities extends not only the application of CRM further than developing relationships with customers, but also demonstrates that maximising the consequences of investments in environmental sustainability regarding brand success, come through effective CRM capabilities. These findings broaden the domain of the signalling theory by showing that CRM provides a mechanism to build and manage a strong connection between a B2B firm and its customers, which allows firms to manage the signals about its environmental sustainability to its customers to reinforce the brand position. Thus, we extend the signalling theory on the interface between environmental sustainability, branding, and CRM by highlighting the nexus between these vital theoretical domains from operations and marketing to advance our understanding about major challenges facing the world.

Third, existing studies indicate the benefits of B2B brands in increasing performance across a wide range of areas (e.g., Cretu & Brodie, 2007; Worm & Srivastava, 2014; Wuyts et al., 2009). Our point of departure is focusing on B2B manufacturers and explain the critical role of sustainability-based brand image in enhancing their market performance. This level of theoretical analysis has received scant attention to-date. In advancing the literature, we posit that environmental sustainability is the key to unlocking brand image in the B2B manufacturing sector where resource exploitation and the resulting environmental damage are prominent issues. When this effect is unlocked, brand image can attract public appraisal and increase the market performance of B2B manufacturing firms by increasing their sales revenue and profitability.

Fourth, prior research on attitude theory highlights the significance of customers' environmental attitudes in their purchasing behaviour and perceptions of supplier brands in the B2C context (e.g., Delmas & Montiel, 2009; Jaiswal & Kant, 2018; Sancha et al., 2016). However, marketing research on B2B has not investigated the role of business customers' environmental attitudes in supporting firms' sustainability-based brand image in promoting market performance. In advancing attitude theory, our findings suggest that the extent to which a manufacturing firms' brand image improves their market performance may depend very much on their business customers' environmental attitudes. The results demonstrate this connection and the findings are significant because we integrate the manufacturer-customer dyad perspectives. This research design enhances the rigour of our theory testing and provides a valid picture of the precise business customers' reactions to environmental sustainability and the corresponding brand image effects and changes. Further, despite growing research on B2B branding, studies predominantly focus on developed countries (Nyadzayo et al., 2018). Generalizability of the practices of firms in these markets may not always occur easily, especially into the context of emerging countries (Simões, Singh, & Perin, 2015). This study responds to calls from the literature that for some time has been calling for research on B2B branding in emerging countries (e.g., Sheth, 2011; Wiersema, 2013). Given our findings, the research affords a deeper appreciation and more generalisable theoretical avenues for B2B branding theory.

5.2. Managerial implications

This study provides important implications for managers. The findings suggest that a brand can become preferable to business customers if the supplier manufacturer pursues environmental sustainability. Thus, we urge managers of manufacturing firms in B2B markets to pursue environmental sustainability and manage it carefully for a good reputation. When this occurs, managers must identify and signal customers about their efforts and successes to create favourable customer perceptions. By effectively using CRM practices, we suggest that managers must note that signals become more apparent to their business customers through close relationships. Hence, CRM can help disclose environmental sustainability efforts and achievements to engaged and sophisticated customers for better relationships grounded in a positive brand. The information required to drive a strong and favourable brand image can be communicated in several ways including environmental sustainability performance reports, pro-environment campaigns, B2B advertising, the salesforce, and product labels with messages regarding commitment to environmental sustainability.

Moreover, the findings offer guidance to managers of B2B manufacturing firms regarding the extent to which brand image contributes to market performance. We encourage managers who wish to enhance their market performance via a sustainability-based brand image to know the value of customers with higher environmental consciousness and positive environmental attitudes. Our findings show that there are benefits when customers have positive environmental attitudes. When customers do not hold positive attitudes, pragmatic manufacturers may decide that the long-term benefits outweigh the costs of practising environmental sustainability. This will raise the stakes regarding the overall sustainability challenges the world faces. We advise managers to set clear strategies to reshape those customers' attitudes in a more favourable way towards environmental sustainability, thereby maximising the value of the brand image and enhancing market performance. It may be achievable by putting in place informational campaigns or training workshops as part of branding strategies to create an environment where customers are encouraged to consider environmental concerns and sustainability-related challenges in their operations. Such practices would shift customer firms' attitudes from being less positive towards environmental sustainability to a positive and proactive one. Thus, just as B2C firms work on shifting customer attitudes, B2B manufacturing firms also need strategies in place to achieve this. This is important not only for firms but also the environment, which requires all parties to play their roles in improving environmental sustainability.

5.3. Limitations and direction for future research

Our research has several limitations that offer avenues for future research. First, we relied on a cross-sectional design. This leads to causal inference issues even though we used both firm and customers. Future studies may consider applying a longitudinal research design to ascertain the relationship between the variables in our model. Second, although we proved the importance of environmental sustainability practices in promoting manufacturers' brand image, the environmental aspirations and attitudes of CEOs may motivate business customers to differentiate between brands according to environmental-based actions. Thus, we encourage future researchers to unpack the mechanism by which CEOs' attitudes and leadership behaviours on sustainability can set the tone for the entire firm to enhance the consequences of environmental sustainability. Third, we only addressed the role of CRM as a contingency factor affecting

the relationship between environmental sustainability practices and brand image. It is plausible that factors, such as industry competitiveness and dynamism, influence the consequences of environmental sustainability practices. Future research may investigate these factors to advance our understanding of boundary conditions that affect the outcomes of environmental sustainability practices. Fourth, our research focuses on only two key marketing assets: brand image and its effect on sales and market performance. We focused on the brand image because manufacturing firms with a positive brand image are more likely to stand out in the market, attract new customers, and retain existing customers (Hussain, Al Nasser, & Hussain, 2015). Future research may investigate the implications of environmental sustainability on other marketing assets, such as customer loyalty, customer satisfaction, customer reference, market share, and sales growth. Finally, although Iran shares many characteristics with other N-11 countries, to determine whether our findings hold in other economic contexts, it is important to replicate this study in different economies to examine potential differences in the relationship between environmental sustainability, brand image, and market performance.

References

Aaker, D. (1991). *Managing brand equity*. New York: The Free Press.
Aaker, D. (1996). Measuring brand equity across products and markets. *California Management Review, 38*(3), 102–121.
Ajzen, I. (1991). *The Theory of Planned Behavior. Organizational Behavior and Decision Processes.* University of Massachusetts at Amherst: Academic Press. Inc.
Albino, V., Dangelico, R., & Pontrandolfo, P. (2012). Do inter-organizational collaborations enhance a firm's environmental performance? A study of the largest US companies. *Journal of Cleaner Production, 37*, 304–315.
Algina, J., & Moulder, B. (2001). A note on estimating the Jöreskog-Yang model for latent variable interaction using LISREL 8.3. *Structural Equation Modeling, 8*(1), 40–52.
Antolín-López, R., Delgado-Ceballos, J., & Montiel, I. (2016). Deconstructing corporate sustainability: A comparison of different stakeholder metrics. *Journal of Cleaner Production, 136*, 5–17.
Antonakis, J., Bendahan, S., Jacquart, P., & Lalive, R. (2014). Causality and endogeneity: Problems and solutions. *The Oxford Handbook of Leadership and Organizations, 1*, 93–117.
Bagozzi, R., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science, 16*(1), 74–94.
Baron, R., & Kenny, D. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173.
Bendixen, M., Bukasa, K., & Abratt, R. (2004). Brand equity in the business-to-business market. *Industrial Marketing Management, 33*(5), 371–380.
Bhattacharya, C., Korschun, D., & Sen, S. (2009). Strengthening stakeholder–company relationships through mutually beneficial corporate social responsibility initiatives. *Journal of Business Ethics, 85*(2), 257–272.
Blenkhorn, D., & MacKenzie, H. (2017). Categorizing corporate social responsibility (CSR) initiatives in B2B markets: The why, when, and how. *Journal of Business & Industrial Marketing, 32*(8), 1172–1181.
Boso, N., Adeola, O., Danso, A., & Assadinia, S. (2019). The effect of export marketing capabilities on export performance: Moderating role of dysfunctional competition. *Industrial Marketing Management, 78*, 137–145.
Brach, S., Walsh, G., & Shaw, D. (2018). Sustainable consumption and third-party certification labels: Consumers' perceptions and reactions. *European Management Journal, 36*(2), 254–265.
Brown, B., Zablah, A., Bellenger, D., & Johnston, W. (2011). When do B2B brands influence the decision making of organizational buyers? An examination of the relationship between purchase risk and brand sensitivity. *International Journal of Research in Marketing, 28*(3), 194–204.
Burke, M., Finkelstein, L., & Dusig, M. (1999). On average deviation indices for estimating interrater agreement. *Organizational Research Methods, 2*(1), 49–68.
Campbell, C., Papania, L., Parent, M., & Cyr, D. (2010). An exploratory study into brand alignment in B2B relationships. *Industrial Marketing Management, 39*(5), 712–720.
Chang, Y., Wang, X., & Arnett, D. (2018). Enhancing firm performance: The role of brand orientation in business-to-business marketing. *Industrial Marketing Management, 72*(5), 17–25.
Chen, R. (2015). From sustainability to customer loyalty: A case of full service hotels' guests. *Journal of Retailing and Consumer Services, 22*, 261–265.
Chen, Y. (2010). The drivers of green brand equity: Green brand image, green satisfaction, and green trust. *Journal of Business Ethics, 93*(2), 307–319.
Choi, S., & Ng, A. (2011). Environmental and economic dimensions of sustainability and price effects on consumer responses. *Journal of Business Ethics, 104*(2), 269–282.
Collins, C., Steg, L., & Koning, M. (2007). Customers' values, beliefs on sustainable corporate performance, and buying behavior. *Psychology & Marketing, 24*(6), 555–577.
Connelly, B., Ketchen, D., & Slater, S. (2011). Toward a "theoretical toolbox" for sustainability research in marketing. *Journal of the Academy of Marketing Science, 39*(1), 86–100.
Cordano, M., & Frieze, I. (2000). Pollution reduction preferences of US environmental managers: Applying Ajzen's theory of planned behavior. *Academy of Management Journal, 43*(4), 627–641.
Cretu, A., & Brodie, R. (2007). The influence of brand image and company reputation where manufacturers market to small firms: A customer value perspective. *Industrial Marketing Management, 36*(2), 230–240.
Davis, D., Golicic, S., & Marquardt, A. (2008). Branding a B2B service: Does a brand differentiate a logistics service provider? *Industrial Marketing Management, 37*(2), 218–227.
Delmas, M., & Montiel, I. (2009). Greening the supply chain: When is customer pressure effective? *Journal of Economics & Management Strategy, 18*(1), 171–201.
Dubey, R., Gunasekaran, A., & Ali, S. (2015). Exploring the relationship between leadership, operational practices, institutional pressures, and environmental performance: A framework for green supply chain. *International Journal of Production Economics, 160*, 120–132.
Esfahbodi, A., Zhang, Y., & Watson, G. (2016). Sustainable supply chain management in emerging economies: Trade-offs between environmental and cost performance. *International Journal of Production Economics, 181*, 350–366.
Forbes (2018). The Just 100: America's Best Corporate Citizens. Retrieved July 31, 2018 from https://www.forbes.com/just-companies/list/#tab:rank.
Fornell, C., & Larcker, D. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39–50.
Freire, P. (2018). Enhancing innovation through behavioral stimulation: The use of behavioral determinants of innovation in the implementation of eco-innovation processes in industrial sectors and companies. *Journal of Cleaner Production, 170*, 1677–1687.
Gattiker, T., & Carter, C. (2010). Understanding project champions' ability to gain intra-organizational commitment for environmental projects. *Journal of Operations Management, 28*(1), 72–85.
Gershoff, A., & Frels, J. (2015). What makes it green? The role of centrality of green attributes in evaluations of the greenness of products. *Journal of Marketing, 79*(1), 97–110.
Ghosh, M., & John, G. (2009). When should original equipment manufacturers use branded component contracts with suppliers? *Journal of Marketing Research, 46*(5), 597–611.
Gotschol, A., De Giovanni, P., & Vinzi, V. (2014). Is environmental management an economically sustainable business? *Journal of Environmental Management, 144*, 73–82.
Gunasekaran, A., & Spalanzani, A. (2012). Sustainability of manufacturing and services: Investigations for research and applications. *International Journal of Production Economics, 140*(1), 35–47.
Gupta, S., Czinkota, M., & Melewar, T. (2013). Embedding knowledge and value of a brand into sustainability for differentiation. *Journal of World Business, 48*(3), 287–296.
Gupta, S., & Kumar, V. (2013). Sustainability as corporate culture of a brand for superior performance. *Journal of World Business, 48*(3), 311–320.
Hahn, R., & Kühnen, M. (2013). Determinants of sustainability reporting: A review of results, trends, theory, and opportunities in an expanding field of research. *Journal of Cleaner Production, 59*, 5–21.
Hayes, A. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach.* New York: Guilford Press.
Heirati, N., & O'Cass, A. (2016). Supporting new product commercialization through managerial social ties and market knowledge development in an emerging economy. *Asia Pacific Journal of Management, 33*(2), 411–433.
Hendricks, K., Singhal, V., & Stratman, J. (2007). The impact of enterprise systems on corporate performance: A study of ERP, SCM, and CRM system implementations. *Journal of Operations Management, 25*(1), 65–82.
Hofer, C., Cantor, D., & Dai, J. (2012). The competitive determinants of a firm's environmental management activities: Evidence from US manufacturing industries. *Journal of Operations Management, 30*(1–2), 69–84.
Homburg, C., Klarmann, M., & Schmitt, J. (2010). Brand awareness in business markets: When is it related to firm performance? *International Journal of Research in Marketing, 27*(3), 201–212.
Homburg, C., Stierl, M., & Bornemann, T. (2013). Corporate social responsibility in business-to-business markets: How organizational customers account for supplier corporate social responsibility engagement. *Journal of Marketing, 77*(6), 54–72.
Hsu, K. (2012). The advertising effects of corporate social responsibility on corporate reputation and brand equity: Evidence from the life insurance industry in Taiwan. *Journal of Business Ethics, 109*(2), 189–201.
Hussain, R., Al Nasser, A., & Hussain, Y. (2015). Service quality and customer satisfaction of a UAE-based airline: An empirical investigation. *Journal of Air Transport Management, 42*, 167–175.
Jacobs, B., Singhal, V., & Subramanian, R. (2010). An empirical investigation of environmental performance and the market value of the firm. *Journal of Operations Management, 28*(5), 430–441.
Jaiswal, D., & Kant, R. (2018). Green purchasing behaviour: A conceptual framework and empirical investigation of Indian consumers. *Journal of Retailing and Consumer Services, 41*, 60–69.
James, L., Demaree, R., & Wolf, G. (1984). Estimating within-group interrater reliability with and without response bias. *Journal of Applied Psychology, 69*(1), 85–98.
Johnson, P., & Neyman, J. (1936). Tests of certain linear hypotheses and their application to some educational problems. *Statistical Research Memoirs, 1*, 57–93.
Kapitan, S., Kennedy, A., & Berth, N. (2019). Sustainably superior versus greenwasher: A scale measure of B2B sustainability positioning. *Industrial Marketing Management, 76*, 84–97.
Keller, K. (1993). Conceptualizing, measuring, and managing customer-based brand

equity. *Journal of Marketing, 57*(1), 1–22.
Keller, R. (1986). Predictors of the performance of project groups in R & D organizations. *Academy of Management Journal, 29*(4), 715–726.
Kim, J., & Hyun, Y. (2011). A model to investigate the influence of marketing-mix efforts and corporate image on brand equity in the IT software sector. *Industrial Marketing Management, 40*(3), 424–438.
Kumar, V., & Christodoulopoulou, A. (2014). Sustainability and branding: An integrated perspective. *Industrial Marketing Management, 43*(1), 6–15.
Kuzey, C., & Uyar, A. (2017). Determinants of sustainability reporting and its impact on firm value: Evidence from the emerging market of Turkey. *Journal of Cleaner Production, 143*, 27–39.
Kvint, V. (2009). *The global emerging market: Strategic management and economics.* Routledge.
Lai, K., Wong, C., & Lam, J. (2015). Sharing environmental management information with supply chain partners and the performance contingencies on environmental munificence. *International Journal of Production Economics, 164*, 445–453.
Leek, S., & Christodoulides, G. (2012). A framework of brand value in B2B markets: The contributing role of functional and emotional components. *Industrial Marketing Management, 41*(1), 106–114.
Leppelt, T., Foerstl, K., Reuter, C., & Hartmann, E. (2013). Sustainability management beyond organizational boundaries–sustainable supplier relationship management in the chemical industry. *Journal of Cleaner Production, 56*, 94–102.
Liu, M., Wong, I., Tseng, T., Chang, A., & Phau, I. (2017). Applying consumer-based brand equity in luxury hotel branding. *Journal of Business Research, 81*, 192–202.
Luo, X., & Bhattacharya, C. (2006). Corporate social responsibility, customer satisfaction, and market value. *Journal of Marketing, 70*(4), 1–18.
Mariadoss, B., Tansuhaj, P., & Mouri, N. (2011). Marketing capabilities and innovation-based strategies for environmental sustainability: An exploratory investigation of B2B firms. *Industrial Marketing Management, 40*(8), 1305–1318.
Martin, E. (2012). *Goldman Sachs's MIST topping BRICs as smaller markets outperform.* Bloomberg August, 7.
Mason, C., & Perreault, W. (1991). Collinearity, power, and interpretation of multiple regression analysis. *Journal of Marketing Research, 28*(3), 268–280.
McWilliams, A., & Siegel, D. (2001). Corporate social responsibility: A theory of the firm perspective. *Academy of Management Review, 26*(1), 117–127.
Merrilees, B., Rundle-Thiele, S., & Lye, A. (2011). Marketing capabilities: Antecedents and implications for B2B SME performance. *Industrial Marketing Management, 40*(3), 368–375.
Morgan, N., Slotegraaf, R., & Vorhies, D. (2009). Linking marketing capabilities with profit growth. *International Journal of Research in Marketing, 26*(4), 284–293.
Moyano-Fuentes, J., Maqueira-Marín, J., & Bruque-Cámara, S. (2018). Process innovation and environmental sustainability engagement: An application on technological firms. *Journal of Cleaner Production, 171*, 844–856.
Narayandas, D., & Rangan, V. (2004). Building and sustaining buyer–seller relationships in mature industrial markets. *Journal of Marketing, 68*(3), 63–77.
Nunnally, J. (1978). *Psychometric theory.* New York: McGraw-Hill.
Nyadzayo, M., Matanda, M., & Rajaguru, R. (2018). The determinants of franchise brand loyalty in B2B markets: An emerging market perspective. *Journal of Business Research, 86*, 435–445.
O'Cass, A., Heirati, N., & Ngo, L. (2014). Achieving new product success via the synchronization of exploration and exploitation across multiple levels and functional areas. *Industrial Marketing Management, 43*(5), 862–872.
Olsen, M., Slotegraaf, R., & Chandukala, S. (2014). Green claims and message frames: How green new products change brand attitude. *Journal of Marketing, 78*(5), 119–137.
Österle, B., Kuhn, M., & Henseler, J. (2018). Brand worlds: Introducing experiential marketing to B2B branding. *Industrial Marketing Management, 72*(5), 71–98.
Pai, D., Lai, C., Chiu, C., & Yang, C. (2015). Corporate social responsibility and brand advocacy in business-to-business market: The mediated moderating effect of attribution. *Journal of Business Ethics, 126*(4), 685–696.
Patterson, P., & Smith, T. (2003). A cross-cultural study of switching barriers and propensity to stay with service providers. *Journal of Retailing, 79*(2), 107–120.
Pickett-Baker, J., & Ozaki, R. (2008). Pro-environmental products: Marketing influence on consumer purchase decision. *Journal of Consumer Marketing, 25*(5), 281–293.
Podsakoff, P., MacKenzie, S., Lee, J., & Podsakoff, N. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879–903.
Rauch, E., Dallasega, P., & Matt, D. (2016). Sustainable production in emerging markets through distributed manufacturing systems (DMS). *Journal of Cleaner Production, 135*, 127–138.
Ruhnke, K., & Gabriel, A. (2013). Determinants of voluntary assurance on sustainability reports: An empirical analysis. *Journal of Business Economics, 83*(9), 1063–1091.
Sancha, C., Wong, C., & Thomsen, C. (2016). Buyer–supplier relationships on environmental issues: A contingency perspective. *Journal of Cleaner Production, 112*, 1849–1860.
Sarkis, J., Gonzalez-Torre, P., & Adenso-Diaz, B. (2010). Stakeholder pressure and the adoption of environmental practices: The mediating effect of training. *Journal of Operations Management, 28*(2), 163–176.
Sharma, A., Iyer, G., Mehrotra, A., & Krishnan, R. (2010). Sustainability and business-to-business marketing: A framework and implications. *Industrial Marketing Management, 39*(2), 330–341.
Sharma, P., Davcik, N., & Pillai, K. (2016). Product innovation as a mediator in the impact of R&D expenditure and brand equity on marketing performance. *Journal of Business Research, 69*(12), 5662–5669.
Sheng, S., & Pan, Y. (2009). Bundling as a new product introduction strategy: The role of brand image and bundle features. *Journal of Retailing and Consumer Services, 16*(5), 367–376.
Sheth, J. (2011). Impact of emerging markets on marketing: Rethinking existing perspectives and practices. *Journal of Marketing, 75*(4), 166–182.
Sheth, J., & Sinha, M. (2015). B2B branding in emerging markets: A sustainability perspective. *Industrial Marketing Management, 51*, 79–88.
Siahtiri, V. (2018). Innovation at the service encounter in knowledge intensive business services: Antecedents and boundary conditions. *Journal of Product Innovation Management, 35*(5), 742–762.
Simões, C., Singh, J., & Perin, M. (2015). Corporate brand expressions in business-to-business companies' websites: Evidence from Brazil and India. *Industrial Marketing Management, 51*, 59–68.
Siu, N., Zhang, T., & Kwan, H. (2014). Effect of corporate social responsibility, customer attribution and prior expectation on post-recovery satisfaction. *International Journal of Hospitality Management, 43*, 87–97.
Slotegraaf, R., & Atuahene-Gima, K. (2011). Product development team stability and new product advantage: The role of decision-making processes. *Journal of Marketing, 75*(1), 96–108.
de Sousa Jabbour, A., Vazquez-Brust, D., Jabbour, C., & Latan, H. (2017). Green supply chain practices and environmental performance in Brazil: Survey, case studies, and implications for B2B. *Industrial Marketing Management, 66*, 13–28.
Spiller, S., Fitzsimons, G., Lynch, J., & McClelland, G. (2013). Spotlights, floodlights, and the magic number zero: Simple effects tests in moderated regression. *Journal of Marketing Research, 50*(2), 277–288.
Srivastava, K., & Sharma, N. (2013). Service quality, corporate brand image, and switching behavior: The mediating role of customer satisfaction and repurchase intention. *Services Marketing Quarterly, 34*(4), 274–291.
Stein, A., Smith, M., & Lancioni, R. (2013). The development and diffusion of customer relationship management (CRM) intelligence in business-to-business environments. *Industrial Marketing Management, 42*(6), 855–861.
Stock, R. (2006). Interorganizational teams as boundary spanners between supplier and customer companies. *Journal of the Academy of Marketing Science, 34*(4), 588–599.
Stock, R., & Zacharias, N. (2013). Two sides of the same coin: How do different dimensions of product program innovativeness affect customer loyalty? *Journal of Product Innovation Management, 30*(3), 516–532.
Stock, R., Zacharias, N., & Schnellbaecher, A. (2017). How do strategy and leadership styles jointly affect co-development and its innovation outcomes? *Journal of Product Innovation Management, 34*(2), 201–222.
Swani, K., Brown, B., & Milne, G. (2014). Should tweets differ for B2B and B2C? An analysis of fortune 500 companies' Twitter communications. *Industrial Marketing Management, 43*(5), 873–881.
Torres, A., Bijmolt, T., Tribó, J., & Verhoef, P. (2012). Generating global brand equity through corporate social responsibility to key stakeholders. *International Journal of Research in Marketing, 29*(1), 13–24.
Varadarajan, R. (2017). Innovating for sustainability: A framework for sustainable innovations and a model of sustainable innovations orientation. *Journal of the Academy of Marketing Science, 45*(1), 14–36.
Vorhies, D., & Morgan, N. (2005). Benchmarking marketing capabilities for sustainable competitive advantage. *Journal of Marketing, 69*(1), 80–94.
Wadhwa, S., Saxena, A., & Chan, F. (2008). Framework for flexibility in dynamic supply chain management. *International Journal of Production Research, 46*(6), 1373–1404.
Wang, J., Li, J., & Chang, J. (2016). Product co-development in an emerging market: The role of buyer-supplier compatibility and institutional environment. *Journal of Operations Management, 46*, 69–83.
Wang, Y., Capon, N., Wang, V., & Guo, C. (2018). Building industrial brand equity on resource advantage. *Industrial Marketing Management, 72*, 4–16.
Wiersema, F. (2013). The B2B agenda: The current state of B2B marketing and a look ahead. *Industrial Marketing Management, 4*(42), 470–488.
Wilson, D., & Stupnytska, A. (2007). *The N-11: More than an acronym. Global economics paper no. 153.* New York: Goldman Sachs Economic Research.
Wong, C., Wong, C., & Boon-itt, S. (2013). The combined effects of internal and external supply chain integration on product innovation. *International Journal of Production Economics, 146*(2), 566–574.
Worm, S., & Srivastava, R. (2014). Impact of component supplier branding on profitability. *International Journal of Research in Marketing, 31*(4), 409–424.
Wuyts, S., Verhoef, P., & Prins, R. (2009). Partner selection in B2B information service markets. *International Journal of Research in Marketing, 26*(1), 41–51.
Yu, W., Jacobs, M., Salisbury, W., & Enns, H. (2013). The effects of supply chain integration on customer satisfaction and financial performance: An organizational learning perspective. *International Journal of Production Economics, 146*(1), 346–358.
Zablah, A., Brown, B., & Donthu, N. (2010). The relative importance of brands in modified rebuy purchase situations. *International Journal of Research in Marketing, 27*(3), 248–260.
Zailani, S., Jeyaraman, K., Vengadasan, G., & Premkumar, R. (2012). Sustainable supply chain management (SSCM) in Malaysia: A survey. *International Journal of Production Economics, 140*(1), 330–340.
Zhao, G., Feng, T., & Wang, D. (2015). Is more supply chain integration always beneficial to financial performance? *Industrial Marketing Management, 45*, 162–172.
Zhu, Q., Geng, Y., & Lai, K. (2010). Circular economy practices among Chinese manufacturers varying in environmental-oriented supply chain cooperation and the performance implications. *Journal of Environmental Management, 91*(6), 1324–1331.