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Product innovation as a mediator in the impact of R&D expenditure and brand equity on marketing performance☆

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ABSTRACT

This study combines the signaling theory and dynamic marketing capabilities perspective to investigate the mediating role of product innovation in the influence of R&D expenditure and brand equity on marketing performance. The study shows that MNC firms are able to use R&D expenditure to improve their product innovation and market share to a greater extent compared to SME and retailer firms. However, the stronger brand equity of MNC firms may actually hurt the performance of their new products by inhibiting product innovation. The authors use regression and probit analysis to study a panel data for 1356 food brands. Overall, this research provides fresh insights into the process by which R&D expenditure and brand equity affect product innovation and marketing performance in highly competitive product categories.

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1. Introduction

Innovation is a major driver of business growth and expansion because it allows firms to transform their dynamic capabilities to become more adaptive and develop the ability to learn and exploit new ideas, given that every firm possesses a bundle of resources, skills and competencies as argued by the resource-based theory of the firms (Peres, Muller, & Mahajan, 2010). Product innovation is particularly important in marketing context because it allows firms to not only develop new market segments but to also expand its current market segments and product portfolios (Gupta, Raj, & Wilemon, 1986; Slotegraaf & Pauwels, 2008). However, product innovation may also lead to higher costs (Lynn, 1998) as well as higher risks and management challenges (Danneels & Kleinschmidt, 2001); hence despite growing research on product innovation, its effect on firm performance remains unclear (De Luca & Atuahene-Gima, 2007). Besides these effects, the relationship between product innovation and brand strategy may vary across different product categories. For instance, Sriram, Balachander, and Kalwani (2007) argue that product innovation leads to brand equity, whereas Beverland, Napoli, and Farrelly (2010) suggest that firm's ability to innovate depends on brand portfolio strategy. In contrast to these opposite views, Slotegraaf and Pauwels (2008) assert the importance of interaction effects between brand equity and product innovation to affect sales.

Consumers often use brand equity to assess firms and their product or service offerings in the absence of reliable information about firms' internal resources and capabilities, because it reduces their information search costs and increases their overall utility (Erdem & Swait, 1998; Erdem, Swait, & Valenzuela, 2006). Signaling theory argues that brands act as signals of the overall quality of a product or service and thereby help consumers resolve their uncertainty caused by a lack of information about a product or a company (Erdem & Swait, 1998). Strong brands signal unobservable quality and product performance expectations (Rao & Ruekert, 1994). Brands also give customers a positive emotional experience during the processes of information search, decision-making, purchase, consumption and ownership (Schmitt & Simonson, 1997).

Notwithstanding their useful theoretical contribution, prior studies on brand equity generally focus on the link between consumers' perceptions of brand equity and their behavioral intentions and outcomes such as repeat purchase and brand loyalty at individual consumer level and not at the level of brands or product categories. Hence, there is still little clarity about the exact mechanism by which brand equity may affect marketing performance (e.g., market share) in a highly competitive marketplace. It is also unclear how marketing and intellectual proprietary assets interconnect with other resources to create a competitive

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advantage through a core business process, such as product innovation (Rust, Ambler, Carpenter, Kumar, & Srivastava, 2004).

In this paper, the authors address these two research gaps by combining signaling theory and the dynamic marketing capabilities (DMC) perspective from resource-based theory (RBT) to model the mediating role of product innovation in the influence of brand equity and research and development (R&D) expenditure on marketing performance. Specifically, this paper explores both direct and indirect effects of brand equity and R&D expenditure on product innovation and marketing performance in the Italian packaged food market. The authors also examine the differences in the influence of brand equity and R&D expenditure on marketing performance for different types of firms (retailer, small and medium enterprises [SMEs] and multinational companies [MNCs]). Finally, the authors discuss the implications of their results and suggest several directions for future research.

2. Theoretical framework and hypotheses

2.1. Dynamic marketing capabilities and signaling theory

DMC assert the role of marketing resources and organizational routines in firm processes, such as generating revenue by satisfying current customers, exploiting existing products and distribution channels, and advertising existing brands (Barrales-Molina, Martinez-Lopez, & Gazquez-Abad, 2014; cf. Bruni & Verona, 2009). Prior research (e.g., Barney, 1991; Kozlenkova, Samaha, & Palmatier, 2014; Wilden & Gudergan, 2015) recognizes the role of marketing resources, such as brands and customer and distribution relationships, in gaining and sustaining competitive advantages (Combs & Ketchen, 1999) but has generally ignored the fundamental processes by which resources are transformed into customer value (Srivastava, Fahey, & Christensen, 2001). Similarly, researchers focus on the role of DMC in developing competitive advantage in inter-firm competition, but ignore the intra-firm distribution of resources and how different brand signals from heterogeneous brand offers (brand portfolio and brand extension strategies) affect consumers, brand value and brand performance (Davcik, da Silva, & Hair, 2015).

Both marketing (e.g., Aaker, 1996) and strategy (e.g., Amit & Schoemaker, 1993) literatures show that brands represent valuable firm resources. Firms develop strong brands using substantial investments in marketing communications (particularly advertising) to create strong consumer awareness and superior consumer attitudes toward the brand. One such value creation mechanism is a firm's brand equity and its market performance (Madden, Fehle, & Fournier, 2006). Brand equity is an important marketing concept because it provides theoretical and business mechanisms for understanding how marketing resources in the form of market knowledge and marketing assets affect brand performance, which in turn affects the overall prospect of a firm's competitive advantage.

Brands have the ability to indicate dependability and performance based on a firm's positioning goals (Erdem & Swait, 1998). A brand may be able to leverage its entrenched reputation for product quality to indicate comparative attributes for new products released onto the market under the same name (Wernerfelt, 1988). Brands as market signals improve consumer perceptions of brand attributes and increase confidence in the brands' claims (Erdem & Swait, 1998). Because unobservable product quality is quite common, scholars investigate the effects and implications of signals such as price (Ippolito, 1990), advertising (Kirmani, 1990), and product quality (Rao, Qu, & Ruekert, 1999). Despite such importance of brand equity as a signal, there are few studies using a holistic approach that combines different classes of signals, hence it is still unclear how firms utilize their resources to meet their customer expectations and achieve competitive advantage. In this context, brand equity paradigm and investments in R&D activities have important monetary underpinnings in signaling theory (Rao et al., 1999).

2.2. Product innovation — antecedents and outcomes

Product innovation provides opportunities for firms to expand and grow into new areas; however, it may also require greater firm resources (Lynn, 1998) and lead to higher risk and management challenges (Danneels & Kleinschmidt, 2001). Despite growing research interest, conceptualization of product innovation and its effects on firm performance remains unclear, as prior studies consider it as an independent, dependent or even a moderator variable (Danneels & Kleinschmidt, 2001).

Using the food industry as an example, with the growing trend toward healthier lifestyles, food safety and higher value for consumers, investments in R&D help create new technologies, production procedures and standards. For example, use of beneficial bacteria may improve the functional properties of food products as well as reduce the dependence on potentially harmful chemicals. As a result, it is almost impossible to find brands in today's supermarkets that do not use organic and/or functional innovations. Danone, a leading European multinational food company has conventional (Evian), organic (Happy Family) and functional (Activia) brands in its portfolio. Similarly, Tesco, a major global retailer, has Tesco Organic and 'Free From' in addition to the conventional brands in its portfolio. The ability to make creative strategic decisions about market segmentation and product differentiation can have a positive effect on customers' perceptions about a new brand's ability to fit their needs. Hence, this paper focuses on two types of product innovation — functional and organic.

2.3. Role of R&D expenditure

Research and development (R&D) is an important dynamic capability (Eisenhardt & Martin, 2000; Wilden & Gudergan, 2015) as well as a driver of product innovation (Gupta et al., 1986). Prior research suggests that R&D intensity is low in the food industry (the setting for our research) with the lowest R&D-to-sales ratios in comparison to other industrial sectors (Bigliardi & Galati, 2013; Khan, Grigor, Winger, & Win, 2013). Traditionally, innovations in the food industry included the development of new production technologies and standards (organic vs. conventional) or changes in product formulations in response to regulations. However, the introduction of functional foods has ushered in the application of new technology and radical innovation in production (e.g., product formulation and production standards) and marketing (e.g., branding, consumer segmentation, and stakeholder expectations).

2.4. Role of brand equity

Marketing practitioners face increasing pressure to demonstrate their contribution to firm's financial performance and demands for resource allocation to achieve the best possible firm performance (O'Sullivan & Abela, 2007). However, the exact mechanism through which brand equity translates into consumer demand, preference and market share, is still unclear. Some studies show that product innovation may lead to brand equity (Sriram et al., 2007), whereas others argue that a firm's ability to innovate may depend on the positioning of a brand within its competitive space (Beverland et al., 2010) or brand equity and product innovation may interact with one another to affect sales (Slotegraaf & Pauwels, 2008). For example, product innovation may be a route to success for an existing brand such as Apple, with new innovative products such as Apple iPhone or iPod, especially in a high-growth category, such as consumer electronics. In contrast, having highly successful brands in mature food product categories may allow firms such as Unilever and Nestle to make continuous investments in product development to develop innovative products. In other words, brand equity may not just have a simple direct effect on product innovation; instead it may interact with other variables (e.g., R&D

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