



# National advertising, dual-channel coordination and firm performance

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## ABSTRACT

With the rapid development of e-commerce, many manufacturers nowadays opt to open an online channel to engage in direct online sales. The mix of retailing with an online channel adds a new dimension of competition and complementarity to a product's distribution channels. Our model focuses on the strategic effect of the manufacturer's national advertising on alleviating the channel competition. We use a game-theoretical model to show that opening an online channel with the added national advertising effectively alleviates the channel conflict and thus helps improve the whole channel and each channel member performance. Depending on the different product categories and the degree of channel substitutability, the manufacturer's investment in the national advertising also will be different. The value of national advertising increases as product is more compatible with online sales and channel substitutability increases.

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## 1. Introduction

According to Commerce Department estimates ([www.electran.org](http://www.electran.org)), US e-commerce sales totaled \$194.3 billion in 2011, up 16.1% from \$167.3 billion in 2010. By 2015, online sales are expected to reach around \$270 billion, an increase of \$100 billion compared to 2010 ([www.emarketer.com](http://www.emarketer.com)). The rapid development of commerce on the Internet has made it attractive for many manufacturers who traditionally distribute their products through retailers, to engage in direct online sales. There are many reasons for this. First, the expanding role of the Internet in consumer and business procurement activity has created unprecedented opportunities for easy and vast access to customers and for firms. Secondly, the economics of materials delivery have been revolutionized by third-party shipping such as Federal Express and UPS. As a result, many manufacturers such as Hewlett & Packard, Lenovo, Dell Computer, Compaq, Sony, Panasonic, Mattel, Pioneer Electronics, Cisco System, P&G, and Estee Lauder, in a variety of industries, have begun to use online channel to sell their products directly to consumers (Tsay and Agrawal, 2004a, 2004b; Seifert et al., 2006; Chen et al., 2008; Amrouche and Yan, 2012). At a time when more and more manufacturers are engaging in direct online sales, their retail partners are concerned that the orders placed through a manufacturer's online channel might reduce their own sales. This concern gives rise to a "channel conflict".

In general, channel conflict can undermine attempts to develop cooperative relations in the intermediated channel, which may have an effect of lowering the profits of all parties. Manufacturers are reacting in different ways to avoid this channel conflict. Some manufacturers (e.g., Levi Strauss & Co.) have halted direct sales (Collett, 1999), while others have tried to convince retailers that their direct online channel taps customer segments that would otherwise not buy the product. For example, Herman Miller Inc., Zeeland, Mich., which manufactures office furniture, is careful to explain to its dealers that its online offers are targeting the home office market, a segment that its dealer network did not serve (Keenan, 1999). More often, direct online channel is used only to provide information and support sales in traditional channel.

A question therefore arises as to when a manufacturer should open an online channel, given that this channel could be potentially in conflict with or complementary to its traditional retail based system. A related question is that once the decision to open an online channel is made, what could the manufacturer do to ensure it success and in the meantime, reduce the negative effect of channel conflict. We show in our research that in order to maximize its profit, the manufacturer needs to increase its national advertising investment to use a dual channel while ensuring the success of the online channel and making the whole supply chain perform more efficiently.

It is well known that advertising plays a strategically important role in stimulating consumer demand. A manufacturer's national advertising campaign is intended to create favorable product attitude and to influence potential consumers to purchase its product. This paper mainly considers the value of the

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manufacturer's national advertising in the dual-channel competition. The national advertising helps strength the manufacturer's product brand and attract more customers to buy its product.

In our research we specifically look at what might happen when a manufacturer opens an online channel resorting to increasing its national advertising investment at the same time. The result of such an action is not obvious and needs rigorous analysis. The retailer could view this new online channel as a threat, and fear that its profit would be hurt. Alternatively, the retailer may also benefit from the increased national advertising investment. Introducing direct online market presence and investing more national advertising to promote the product and thereby improving whole market demand could probably yield higher returns for both the manufacturer and the retailer. We investigate these and other situations in our research. Furthermore, we suggest various optimal marketing strategies for the manufacturer and the retailer to adopt.

The remainder of our paper is organized as follows. Section 2 provides a summary of the relevant literature. Section 3 presents our modeling framework. Section 4 presents our detailed analyses. Conclusions and managerial implications are presented in Section 5. All relevant proofs are given in the Appendix for clarity of exposition.

## 2. Literature review

The channel coordination problem between manufacturer and retailer has been intensely studied by theorists addressing strategic solutions other than direct online channel. McGuire and Staelin (1983) considered the partial substitutability between two products from two manufacturers each selling through exclusive retailers. They concluded that selling through competing franchised retailers is preferable in highly competitive markets, and company-owned stores are better otherwise. Ingene and Parry (1995) studied the case of a manufacturer that sells to independent retailers that directly compete between themselves for customers. They showed that coordination is not always in the manufacturer's interest when retailers compete. Gerstner and Hess (1995) showed that manufacturers can enhance channel price coordination by designing pull-price discounts that target price-conscious consumers. They argued that the increased price coordination improves total channel profits and consumer surplus. Desiraju and Moorthy (1997) studied the channel management issue in a setting where information held by manufacturers and retailers about demand conditions is asymmetric. They argued that performance requirements on both price and service will improve channel performance. Creating competition via direct channels supplements all the above strategies. Wierenga and Soethoudt (2010) conducted an empirical study to show that the manufacturer and the retailer can work together to employ an Efficient Consumer Response (ECR) project to achieve a win-win result.

The study of direct online vs. traditional retail competition began in the recent decades. Balasubramanian (1998) modeled competition in the multiple-channel environment from a strategic viewpoint. The level of information disseminated by the direct marketer is shown to have strategic implications, and the author analyzes the use of market coverage as a lever to control competition. Levary and Mathieu (2000) studied the physical retails, e-retails, and hybrid retails; they argue that hybrid retails present the best for the future. Inge et al. (2002) found that powerful firms with a few direct channels achieve better financial performance than less powerful firms with a broader direct market offering. Chiang et al. (2003) studied the dual channel supply chain design for goods that do not provide a service.

Their results show that wholesale price discount can be utilized to achieve the dual-channel coordination. Tsay and Agarwal (2004a) examined the value of sales effort without considering the product compatibility to the web and the degree of channel substitutability in the online vs. traditional channel competition when the manufacturer provides the retailer with the product to sell in the traditional channel, while also selling directly to the same market, thereby competing with its own retailer. King et al. (2004) used a game-theoretic approach to study the impact of Web-based e-commerce on retailers' choices of distribution channel strategies. Yan and Ghose (2010) assessed the impact of forecast accuracy about consumers' willingness to pay on the performance of traditional vs. online retailer. Cai (2010) utilized a game-theoretic model to show that it is mutually beneficial for the supplier and the retailer to use the revenue-sharing contract to improve channel performance when the supplier opens a direct online channel. Yan (2011) showed that brand differentiation with profit sharing can be utilized to improve the dual-channel coordination. Yan and Pei (2011) assess the impact of information on channel members' performance when manufacturer adds an online channel to the existing traditional one. Their results show that information and profit sharing can effectively improve the channel performance and each channel member's profit. However, all these papers focused on the pricing factor and did not consider the important effect of the manufacturer's national advertising on online vs. retail channel competition when the manufacturer opens an online channel. Most studies on advertising and channels, on the other hand, focused on co-operative advertising and ignored the importance of national advertising involved in a manufacturer's usage of an online channel. For example, Dant and Berger (1996) studied cooperative advertising decisions in a franchising setup. Huang et al. (2002) did research on cooperative advertising between the manufacturer and the retailer without considering price. Karray and Zaccour (2006) investigated the profitability of implementing a cooperative advertising program that allows the manufacturer to counter the harm of private label's introduction. They show that the retailer will accept such program only if the national brand competes strongly with the private label. Yan (2010) conducted a theoretical study to show that the manufacturer and the e-retailer can effectively improve channel coordination through cooperative advertising strategy and strategic alliance market structure. However, these papers focus solely on a manufacturer-single retailer channel and did not address the strategic role advertising plays in the online vs. traditional channel competition. Furthermore, these papers also did not address the strategic effects of the product categories and the degree of channel substitutability on the national advertising expenditure in the dual-channel competition. Our paper addresses these limitations in current research by studying the strategic value of national advertising in the online vs. traditional channel competition when the manufacturer opens an online channel. We develop valuable business models to derive important marketing strategies for managers. To our knowledge, our research is the first one to study how the manufacturer's national advertising can be utilized to alleviate the dual-channel competition and furthermore, our research also is the first one to study how the product compatibility to the web and the degree of channel substitutability impact pricing and advertising strategies simultaneously in the dual-channel competition of the manufacturer and retailer supply chain in the extant literature. Specifically, this paper addresses the following research questions. How will the product compatibility and the degree of channel substitutability to the web impact the manufacturer's investment on the added national advertising, respectively? Can both the manufacturer and its retailer benefit from the added national

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