Equal Pricing Strategies in a Dual Channel Supply Chain

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ABSTRACT

In this article, equal pricing strategies are studied in a dual channel supply chain where a manufacturer sells to a retailer as well as to consumers through a direct channel according to the assumption that the manufacturer commits setting the same retail price as the traditional channel to reduce the channel’s conflict. The authors first analyze the effect of different pricing strategies on the retail price, wholesale price and profits. The cooperative strategy is also studied to see how it benefits both parties in the dual channel supply chain. Finally, through a numerical example, it is demonstrated that providing convenience of the direct channel is important for the manufacturer and service is a distinctive advantage for the retailer. Furthermore, the paper shows that if the service quality has a significant effect on the direct channel, then the manufacturer tends to abandon commitment of equal pricing strategy.

Keywords: Channel Competition, Direct Channel, Pricing, Retail, Supply Chain Management

INTRODUCTION

The Internet has advanced rapidly over the past years so much so that many famous manufacturers such as Sony, Apple Computers, Canon, Kodak and Minolta sell their product directly via the Internet (direct channel) in addition to independent retailers (Kumar & Ruan, 2006). For a manufacturer, a direct channel not only delivers information about the company and products in a relatively inexpensive way but also allows the manufacturer to reach newer market segments. However, the direct channel may affect the channel relationship and cause conflicts with the existing retail channel (traditional channel). Consequently, the retailer faces demand shift and price competition.

Pricing strategy in different structures of supply chain has been comprehensively studied. Ba, Stallaert, and Zhang (2007) examine the pricing competition between two firms that sell substitutable goods through the Internet. Huang and Swaminathan (2009) study four prevalent pricing strategies in monopoly and duopoly environments with retailers having pure and dual channels respectively. They also provide theoretical insights on the near optimality of some of the prevalent pricing strategies. Yan and Wang (2009) develop a pricing strategy which depends on the market forecasting information.

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Their results show that accuracy of forecasting information affects the value of retail price and product’s advertising spending. Xiao, Cai, and Jin (2010) consider a two-period pricing strategy for the manufacturer and retailer. They also reveal that the demand uncertainty and cost of risk largely affect the retail price and wholesale price. Wen and Chen (2010) present a dynamic pricing model where a seller offers two substitutable perishable products in the monopolist market. They analyze the problem using a multinomial logit model to describe the customer choice behavior. Game theory is a common approach for model construction. To the best of our knowledge, McGuire and Staelin (1983) is perhaps the first paper to consider a pricing problem using the game theory. They compare two identical retailers who compete on price and assume that an individual manufacturer is the supplier to both retailers. Yao and Liu (2005) consider the competitive pricing strategy under the Bertrand game and the Stackelberg game in a mixed distribution channel of Internet and retail.

In addition to retail price, several researches have shown that the following factors: preferences of channel and brand and service quality are determinants of consumer’s purchase decision. Kumar and Ruan (2006) assume that consumers are either brand loyal or store loyal. They derive the condition that influences the manufacturer’s decision to complement a traditional channel with an Internet channel. Kurata, Yao, and Liu (2007) analyze what the optimal supply chain price would be if a manager considers both direct vs. store channel competition and national brand vs. store brand competition. Liang and Huang (1998) and Rohm and Swaminathan (2004) show that service quality is an important factor affecting a consumer’s decision toward alternative channels. Yao, Yue, and Liu (2008) analyze two value-adding heterogeneous retailers who compete with the retail price and the values added to the product. Dumrongsi, Fan, Jain, and Moinzadeh (2008) analyze the heterogeneous service sensitivity in consumers and the effect of different costs and services in a dual channel on the result.

In order to improve channel’s performance, manufacturers may offer policies such as two-part tariff, quantity discount, or optimal wholesale price mechanism to coordinate both Internet-based sales and traditional sales channels. Shi and Xiao (2008) study the effect of two types of contracts: buyback contract and markdown-price contract on the channel performance. Their results show that these coordinative contracts can improve the expected profit for the manufacturer and retailer. For an overview of channel coordination research, we refer to Swaminathan and Tayur (2003), Cattani, Gilland, and Swaminathan (2004), and Tsay and Agrawal (2004). Cattani et al. (2006) find a specific equal pricing strategy that optimizes profits for the manufacturer and the retailer. They also mention that a survey reports that nearly two thirds of the product’s price on traditional channel and direct channel are identical. With identical retail prices, Cai, Zhang, and Zhang (2009) present that the simple wholesale price discount contracts can improve the performance of the dual-channel in Stackelberg and Nash games. They also show that the equal pricing strategy can reduce the channel conflict and increasing more profit to the retailer. Table 1 shows a recent survey of prices of popular products and demonstrates that the manufacturer’s Internet price and the traditional retail price are almost the same. This evidence motivated us to investigate further equal pricing strategies in a dual channel supply chain.

In this paper, we consider a simple supply chain composed of one manufacturer and one retailer. The manufacturer is assumed to be a leader who first sets the wholesale price and retail price in the direct channel. The retailer is then assumed to be the follower who accordingly sets the retail price in the traditional channel. We further assume that the manufacturer commits to set the retail price in the direct channel to match the retail price in the traditional channel. Both of them choose their own decision variables to maximize their respective profits under three equal pricing strategies of Cattani et al. (2006). They are (1) the manufacturer keeps the wholesale price as it was
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