VERTICAL INTERACTIONS IN MARKETING CHANNELS: A GAME THEORETIC VIEW

by Sihem Taboubi

Abstract

The main objective of the is to focus on dynamic cooperation in a vertical network. First, we analyze the problem of conflict and cooperation in the vertical structure, and highlight the need to develop management strategies that lead to channel coordination. Then, we review the major static and dynamic studies that identified some coordinating mechanisms in the marketing channel and discuss them. Finally, we investigate if some dynamic strategies can coordinate the channel. We demonstrate in a dynamic setting that a cooperative advertising program, where the manufacturer supports a percentage of retailer's promotional costs, can be an effective device for channel coordination. We prove also that, under some conditions, this mechanism is implementable when retailer's promotional activities harm the brand image. Finally, we make the design of a state-dependent incentive strategy that allows the realization of the cooperative outcome as an equilibrium.

The dissertation is structured as follows: Chapter one presents the issues of channel conflict and cooperation. In the first section, the relationship between conflict and channel inefficiency is explained and the need for cooperation is highlighted. In the second section, a brief description of the main game theoretic concepts used in the management science analysis of vertical channels is presented. The third section gives an overview of the major studies that focused on the channel structure issue. Although we don't make a detailed description and analysis of these studies, we consider that it is important to mention them as this issue is not completely independent from the issue of conflict and cooperation in the channel .i.e. vertical integration is a situation of full coordination. The final section of the first chapter examines carefully the literature about conflict and cooperation in the marketing channel, surveys the different mechanisms that lead to channel coordination, and discusses this literature.

In the second chapter, we examine whether a dynamic cooperative advertising scheme can be a coordinating mechanism in the channel. For this purpose, we develop a dynamic analytical model in a network composed of a unique manufacturer and a unique retailer. The former invests in advertising and trade promotions and the latter spends on consumer promotions. Advertising is intended to build consumer goodwill whereas trade promotions, which take the form of a cooperative advertising program, aim to push the products to the final consumer. The model allows us to determine the equilibrium advertising, promotional, and participation rates under a cooperative advertising program, and to compare them to the equilibrium strategies and their payoffs when channel members do not have such arrangement. Both scenarios are examined under hypothesis of presence or absence of decreasing marginal effect of goodwill on sales. The results show that, whether or not the goodwill stock has a decreasing marginal effect on sales, the cooperative advertising arrangement is a coordinating mechanism in the channel. Moreover, we demonstrate that this program is Pareto improving, that is, both channel members are better off when they adopt the cooperative advertising program.

In the third chapter, we consider a similar situation than the one described above. But in this case, we take into account the negative effects of retailer's promotions on the brand image. We consider that the retailer can act either in a myopic way, or in a non-myopic way. Retailer's behavior is myopic when the retailer disregards the damaging effects of his promotional decisions on the brand goodwill. Alternatively, a non-myopic retailer is careful about this effect.

We investigate two scenarios: A scenarios where the manufacturer do not offer any support to the retailer, and a scenario where the manufacturer is the channel leader that participates in retailer's promotional costs. The first scenario includes two subcases relating to retailer's behavior. In the first subcase, the retailer is far-sighted while in the second, he acts myopically. Under the different scenarios, we compute Nash and Stackelberg stationary feedback equilibria and compare them in order to investigate if the cooperative advertising program is still a coordinating mechanism.

The main result established in this essay is that the cooperative advertising program is implementable only under some conditions about the initial level of brand goodwill and the effect of promotions on the goodwill evolution. Indeed, we demonstrate that both channel members will accept the cooperative advertising program when the initial brand image level is weak, or when it is intermediate but the harmful impact of promotions is low. When the initial brand image level is high, or when the negative effect of promotions is high, channel members are not interested by the cooperative advertising program, and the retailer is better off when he acts myopically.

The fourth chapter is also intended to examine the issue of channel coordination in a dynamic setting. We compute the cooperative levels of advertising and promotional strategies of channel members in a simple setup, and make the design of a state-dependent incentive strategy that allows the establishment of the cooperative solutions as an equilibrium. We consider that the manufacturer acts as a channel captain who's responsible of achieving the cooperative outcome, and demonstrate that a one-sided incentive that flows from the manufacturer to the retailer, and that depends on the current level of goodwill leads to full channel coordination. This incentive is equal to half of the manufacturer's current marginal revenue.

We conclude the dissertation by presenting the main results and contributions of our study, presenting its limits and the future research directions.

Key Words:

Differential games, Marketing Channel, Cooperative Advertising, Feedback Nash and Stackelberg Equilibria, Incentive equilibrium.