



Does the Addition of a Marketing Intermediary Increase the Manufacturer's Profits?

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Authors' contributions

This work was carried out in collaboration between group of MA students (RG, ML, EI and KI) in the department of management and an instructor (AE). This research was supported by the Cathedra of the Department of Management, Bar Ilan University, Israel.

Article Information

DOI: 10.9734/AIR/2015/10742

Editor(s):

(1) Marco Sorrentino, Department of Law and Economic Sciences, PegasoTelematic University, Italy.

Reviewers:

(1) Anonymous, USA.

(2) Michael Richarme, Marketing department, The University of Texas at Arlington, USA.

(3) Anonymous, China.

Complete Peer review History: <http://www.sciencedomain.org/review-history.php?iid=757&id=31&aid=7098>

Original Research Article

Received 7th April 2014
Accepted 27th November 2014
Published 6th December 2014

ABSTRACT

This article will examine whether adding a marketing intermediary can increase a manufacturer's profits, as compared with marketing the product directly to the consumer. Previous studies suggest that cooperation between manufacturers and retailers provides both parties with benefits such as cost reduction, reduction of inventory levels and improved customer service, in addition to higher profits than each party would have achieved on its own. Clearly, the common interests of the two parties surpass the potential conflicts between the parties and these common interests should dictate the nature of the collaboration.

Herein, using a mathematical model, we show that under certain conditions a manufacturer of durable consumer goods in a vertically integrated supply chain can increase profits by decentralizing, i.e. adding a retail distribution channel. This result holds even if the retailer does not bring unique skills or knowledge to the relationship or if there is no competition in the product market. We deal with two problems simultaneously: The channel coordination problem and the Coase problem (although we focus on markets in which the manufacturer must sell products rather than lease them). We use a numerical example to demonstrate an application of our model and we offer directions for future research.

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Keywords: Inventory; reputation; coase conjecture; channel coordination.

1. INTRODUCTION

This paper seeks to test whether a manufacturer can increase profits by adding a marketing intermediary, as opposed to marketing his product directly to the consumer.

Strategic cooperation between suppliers and retailers has become commonplace in Europe and the United States. Firms that engage in such partnerships include leading suppliers such as Coca-Cola, Unilever and Nestle and multinational retail chains such as Tesco and Metro. These firms do not hesitate to publicly disclose details on the various actions taken within their partnerships and the outcomes of these actions. Dedicated organizations have been established with the aim of encouraging cooperation between suppliers and retailers in Europe and the US; the Efficient Consumer Response (ECR) organization, for example, serves most of the leading corporate retailers and suppliers worldwide.

One example of a successful collaboration between a leading supplier and a retail chain is that of L'Oreal Germany and the German drugstore chain DM, the largest chain of its kind in Europe. The strategic partnership between the two lasted seven years and yielded high profits for both parties. The firms' partnership contract included an agreement to uphold a set of shared values, including long-term commitment, growth over the years, transparency, openness and a focus on the customer.

A successful partnership between a manufacturer and a retailer can provide both parties with numerous advantages, including cost reduction, reduction of inventory levels and improved customer service.

Most researchers suggest that the inclusion of an intermediary in the marketing process is beneficial to the manufacturer only under the following conditions:

- The mediator brings specific qualities to the partnership that the manufacturer does not possess (proprietary knowledge, access to customers, cheap shipping costs, specific retail locations).
- Competition in the product market is very intense.

We will show that under certain conditions, a manufacturer of durable consumer goods (defined as goods for personal consumption that last for a number of years and require replacement in the long term, e.g. car, refrigerator, TV) can increase profits by decentralizing and adding a retail distribution channel, even if the retailer does not possess unique skills or qualities (as described above) or if there is no competition in the product market.

In selling a durable product, the manufacturer must deal with two problems simultaneously: (i) the channel coordination problem and (ii) the Coase problem.

2. CHANNEL COORDINATION PROBLEM

The manufacturer is faced with the problem of coordinating a contract that gives retailers the opportunity to choose the appropriate price and service levels, as well as to make other marketing decisions.

Manufacturers and retailers of durable goods create their own future competition. Used durable products can be sold in a secondhand market, thereby competing against new products. Any contract that the manufacturer creates with the retailer must take this source of competition into account.

2.1 Solution

In formulating the contract, the manufacturer determines his wholesale price per unit on the basis of his marginal costs. He also charges the retailer a fixed amount per period. This amount enables the manufacturer to extract additional profit from the retailer, but the amount must be determined such that it will still be worthwhile for the retailer to participate in the collaboration.

3. COASE PROBLEM

In a monopoly, a manufacturer of durable goods faces challenges in maintaining high prices, i.e. his monopoly power is eroded. Because durable products require replacement only after long periods of time, demand decreases after the sale of an initial quantity. Thus, once the initial quantity is sold, the manufacturer will always have an incentive to lower his prices and sell additional units. Consumers with rational expectations will force the monopolist to lower

prices right from the start.

3.1 Solution

Leasing the product to consumers instead of selling it can enable the manufacturer to maintain ownership of the used units and thereby maintain high prices and avoid the Coase problem.

However, such a solution is not always applicable or profitable, for the following reasons:

- High costs of formulating contracts with many individual consumers.
- Attempting to remarket a product that has been leased: High costs with low chances of success.
- Concerns regarding consumers' potential misuse of the products.

We will focus on markets in which leasing is not a feasible solution because of the reasons outlined above [1].

Much of the literature describes the relationship between a manufacturer and a retailer as a leader–follower problem [2,3]. One of the key assumptions in these studies is that the manufacturer, as the leader, has almost complete control over the retailer's behavior. In practice, however, the retailer has some control over the manufacturer.

There are three main streams of literature on channel coordination between the manufacturer and the retailer. The first stream assumes that the market is perfectly competitive. The second stream assumes a monopolistic market. The third stream of literature investigates the effects of quantity discounts on the efficiency of manufacturer–retailer transactions. The latter stream indicates that quantity discounts are an effective mechanism for enhancing system efficiency. All three streams of research indicate that channel coordination benefits the supply chain as a whole (in terms of profit) as well as each member of the supply chain individually.

One example of manufacturer–retailer coordination is in the context of car rentals. Cooperation between car manufacturers and large car rental companies has led to reductions in the prices of used cars and used car sales by rental companies have grown rapidly.

Another example of such coordination is the relationship between the government-run New

York Power Authority and the Long Island Lighting Company (LILCO), a local electric company. This collaboration benefited each party individually and the supply chain as a whole.

To examine the benefits of manufacturer–retailer collaboration, we begin by assuming that the manufacturer adopts a lot-for-lot policy, meaning that the manufacturer produces only the quantity that was ordered by the retailer. The retailer's inventory policy is assumed to be the commonly used economic order quantity (EOQ) model. These assumptions are based on the notion that the manufacturer and the retailer seek to maximize their average annual profits.

First, we examine a case in which there is no coordination between the participants. We model the interaction between the manufacturer and the retailer as a non-coordinated two-stage game, in which the manufacturer is the leader and the retailer is the follower. The leader, who has the ability to enforce his strategy on the other player, announces his strategy first and only then forces it onto the follower. The follower then determines her strategy on the basis of the leader's actions. The manufacturer first announces his wholesale price and then the retailer—using the EOQ model, as noted above—decides on the retail price. A unique equilibrium point is achieved.

Next, we explore a case in which there is coordination between the manufacturer and the retailer. We discuss two cases in which coordination between the manufacturer and the retailer increases the profit of the supply chain. In the first, the manufacturer and the retailer coordinate with each other using only the EOQ model. In this case, the manufacturer's annual profit and the total annual profit of the supply chain are higher than those obtained in the absence of coordination, whereas the retailer's annual profit is lower. In the second case, we assume that all variables are coordinated. We find that in this case the annual profits of the manufacturer and of the supply chain are higher in comparison to the case of non-coordination and that the retailer's annual profit remains the same.

We further show that in the case of full coordination, the retail and wholesale prices are lower and that the annual profits of the manufacturer, the retailer and the overall supply chain system are higher than in the absence of coordination.

Thus, we show that coordination increases the system's profits [4,5].

3.2 Question

Under which conditions is coordination between the manufacturer and the retailer efficient and how can the two parties maintain these conditions over time?

The two collaborating partners must make a mutual commitment to each other in order to avoid unilateral dependence. One of the best ways of creating such commitment is through exclusivity. A manufacturer can provide the retailer with exclusive rights to distribute his products, according to several parameters (geographic area, types of products, marketing channels). Correspondingly, the retailer might make a commitment not to sell other products or not to sell products that compete with the manufacturer.

Each member of the supply chain possesses critical information. The retailer possesses information about customers—she has accurate data regarding sales, returns and customer preferences and she can also perform point-of-sale market research to obtain information about customers' consumption habits and purchasing behavior. The manufacturer controls information about the product: Its pros and cons and how it compares to competing products [6]. The manufacturer might also know the aggregate value of the product in combination with additional products or how to leverage other products to promote the focal product. A successful and efficient collaboration between the two parties is likely to be based on maximal information sharing.

When the two parties are dependent on each other to obtain high profits, there is no incentive for either party to sever the connection. Thus, the relationship must be based on a "win-win" principle, in which each party seeks to promote the success of the other.

Supply chain collaborations are not "quick and easy"; they require a great deal of investment, patience and mutual understanding. Each party must carefully select the partner with which it establishes a collaboration. Yet when a collaboration is successful, both parties can benefit enormously [7].

4. MODEL

In this section we develop a model to describe a situation in which the manufacturer of a durable product sells his product to a retailer, who then sells it to consumers.

The manufacturer produces the product at a constant marginal cost, $c > 0$. To market this product to consumers, the manufacturer uses a retailer, who purchases units from the manufacturer and sells them to consumers. We assume that remarketing costs and the risk of customer misuse prevent the retailer from leasing the product to consumers. The retailer's marginal costs are assumed to be fixed and equal to 0. In our model, a product sold in a given period continues to be serviceable in the subsequent period.

We assume a planning horizon of two periods. The product is assumed to deteriorate from one period to the next (in the period in which it is sold, the product is considered "new" and in the next period it is considered "used"). The term δ , $0 \leq \delta \leq 1$, represents the product's resistance to deterioration between periods; $(1-\delta)$ represents the extent of deterioration due to use. When $\delta=1$ the product does not deteriorate and used units are identical to new ones. When $\delta=0$, the product breaks down completely after the first usage period. A consumer who buys the product can sell the used product secondhand in the subsequent period. We assume that the secondhand market is competitive and that the manufacturer and the retailer cannot control this market. Thus, used products compete against new products and the level of competition is dependent on δ . If the product is perfectly durable (i.e. $\delta=1$), then new and used units are the same and competition is intense. If the product is not durable at all ($\delta=0$), the secondhand market does not constitute a source of competition.

In each period, the consumer attributes a value to the product on the basis of the product's serviceability. A new unit has a higher level of serviceability compared with a used unit and therefore is attributed a higher value than a used unit.

Notations

r_{ij} = Product type j 's "single-period retail price" in period i ($i = 1, 2; j = n, u; n = \text{new}; u = \text{used}$).

- ρ = Discount factor; $0 \leq \rho \leq 1$.
 α = An arbitrary positive constant.
 p_{1n} = Sales price of a new product, reflecting the product's future serviceability, such that: $P_{1n} = r_{1n} + \rho r_{2u}$
 w_i = The product's wholesale price in period i ($i = 1, 2$)
 F_i = A fixed fee in period i , paid by the retailer to the manufacturer ($i = 1, 2$)
 q_{ij} = Quantity sold in period i ($i = 1, 2$) of product type j ($j = n, u$). A product sold by the producer to consumers in one period becomes used in the subsequent period, so: $q_{2u} = q_{1n}$ (We assume no additional loss for this kind of products)

When the value of δ increases, products deteriorate to a lesser degree from one period to the next, indicating that they are closer substitutes for new products. Thus, the prices r_{2u} and r_{2n} should decrease in δ . Because a new product provides better service, its price is higher than that of a used product. The quantity of used products in the second period (q_{2u}) negatively affects the price of a new product in this period.

The manufacturer plays the role of a Stackelberg leader who announces a contract with the retailer. On the basis of this contract, the retailer chooses the number of units to order and sell in the market.

5. ANALYSIS

In a vertically-integrated supply chain, the manufacturer can choose between leasing and selling the product to the consumer. In the absence of remarketing costs and a risk of misuse on the part of the customer, leasing is the more profitable option. Thus, we assume that the profit obtained through leasing represents the optimal profit that the manufacturer can achieve in a vertically-integrated supply chain. We will compare this profit to two cases in which the manufacturer collaborates with a retailer, who sells the product to consumers. In the first case, we assume that there is no long-term commitment between the two parties; i.e. the contract covers the first period but not the second. In the second case, we assume that the contract covers both periods.

5.1 Two-part Contract without Long-term Commitment

According to previous research, the channel coordination problem is solved by a two-part tariff contract comprising a fixed fee per period (paid

by the retailer to the manufacturer) and a wholesale price per unit per period. In this contract, the manufacturer sets the wholesale price per unit (according to his marginal costs) and uses the fixed fee per period (F_i) to extract the remaining profits from the retailer. In order for the contract to be acceptable to the retailer, it must enable her to make a positive profit.

We first solve the problem for period 2. The retailer's profit in this period is:

$$\pi_{D2} = (r_{2n} - w_2)q_{2n} - F_2$$

The retailer must choose the value of q_{2n} that maximizes her profits. After the retailer chooses the desired quantity, the manufacturer seeks to maximize the following profit function:

$$\pi_{M2} = (w_2 - c)q_{2n} + F_2$$

The manufacturer must select the optimal values of w_2 and F_2 . The optimal value of w_2 is c and F_2 enables the manufacturer to extract the retailer's profits from the second period.

Now the retailer's problem in the first period is to select the first-period order quantity that maximizes her profits over both periods:

$$\pi_{D1} = (p_{1n} - w_1)q_{1n} - F_1 + \rho\pi_{D2}$$

After the retailer chooses the value of q_{1n} , the manufacturer seeks to maximize his profits by:

$$\pi_{M1} = (w_1 - c)q_{1n} + F_1 + \rho\pi_{M2}$$

Note that for $\delta > 0$ the optimal wholesale price is higher than the marginal cost and when $\delta = 0$ the product is not durable and the optimal wholesale price is equal to the marginal cost.

We summarize our results in the following list of proposals:

Proposal 1

There is a two-part tariff contract that coordinates the distribution channel. In this contract, the manufacturer's wholesale price in the first period is greater than or equal to his marginal cost and in the second period his wholesale price is equal to his marginal cost. The manufacturer's profit under this contract is equal to that obtained in a vertically-integrated supply chain, in which the manufacturer sells his product directly to consumers.

Note that in the first period, the wholesale price of non-durable consumer goods is equal to the marginal cost, whereas the wholesale price of durable goods is greater than the marginal cost. (In the second period the wholesale price of both types of goods is equal to the marginal cost.) The higher the wholesale price, the lower the quantity of products that the retailer orders from the manufacturer.

The more products the retailer sells in the first period, the lower the prices of new and used products in the second period. This may serve as an incentive for the retailer to sell fewer products in the first period in order to earn more in the second period. The manufacturer can observe the retailer's decisions in the first period and extract the retailer's profit in the second period through the fixed fee. This means that the retailer has no control over the outcome in period 2 and therefore is indifferent to the quantity limitation in period 1. The manufacturer, however, can affect the outcome of period 2. In period 1, if the manufacturer sets his wholesale price as the marginal cost, the retailer will order a relatively large quantity of products. Therefore, the manufacturer increases his wholesale price beyond the marginal cost.

One might think that the retailer in our model is committed to maintaining high prices, similarly to the monopolist in [2]. However, the opposite is true. The monopolist is concerned about how the quantity sold in one period affects outcomes in the following period. In our model, in contrast, the retailer is not concerned about how her choice of a quantity of products in the first period will affect the outcome of the second period. Rather, the retailer has an incentive to sell "too many products" in the first period. In our model the wholesale price function does not address the retailer's inability to commit to a high future price; rather, it serves as a means for the manufacturer to influence the retailer to order fewer products in the first period.

Although the coordinated supply chain under the two-part tariff is as efficient as the vertically integrated chain, the chain still suffers from the Coase problem. As discussed, the manufacturer's objective of extracting all the retailer's profits in the second period creates an incentive problem. However, if the manufacturer makes a commitment not to act in this way, it might be possible to eliminate this problem. Therefore, we consider another type of contract, in which the manufacturer commits in advance to

both periods.

5.2 Two-part Contract with Long-term Commitment

The manufacturer offers a contract that covers both periods. This contract is formulated with the aim of convincing the retailer that the manufacturer will not extract all of the retailer's profits in the second period. In this contract, the manufacturer sets a single fixed fee for both periods and a different wholesale price for each period.

The game is solved by solving the retailer's problem for the second period and then solving her problem for the first period. Because the contract covers both periods, it is required to provide the retailer with a positive profit over the entire time frame. We solve the manufacturer's problem for the first period by simultaneously choosing the optimal conditions for both periods.

Proposal 2

A two-part contract with long-term commitment coordinates the distribution channel and resolves the Coase problem, thus achieving the highest level of profit. In each period, the manufacturer's optimal wholesale price is higher than his marginal cost.

In most cases committing to a single retailer is less expensive, more reliable and more practical than committing to numerous individuals. Our analysis shows that a contract with a retailer who leases the product to consumers enables the manufacturer to solve the Coase problem and the manufacturer's profit is greater than in the case of the vertically integrated supply chain, in which the product is sold to consumers. Furthermore, even if there is no possibility of leasing the product, the manufacturer can achieve higher initial profits by selling the product through a retailer. In this contract, the sale of the company to the retailer (marginal cost pricing) is also a feasible solution. However, this is not the equilibrium solution, as the manufacturer can achieve higher profits by charging wholesale prices that are higher than his marginal cost.

5.3 Allowing Renegotiation

In our analysis of the manufacturer–retailer contract in the previous section, we assumed that the manufacturer fulfills his contractual

commitment. However, in a case where a modification to the contract might yield benefits to both parties, contract renegotiation is in order. Renegotiation can occur at the end of the first period before decisions are made regarding the second period.

In the case of a renegotiation, the manufacturer chooses a new wholesale price for the second period and the retailer chooses her optimal order quantity for the second period. We compute each side's profits for the second period given the new parameters and compare them with the profits that would have been obtained under the original contract. This leads us to the following proposal.

Proposal 3

When $[(\alpha - c)(6 - 5\delta + 6\delta\rho) - (6\alpha - c)\delta^2\rho][(c - \alpha)(2 - 3\delta + 2\delta\rho) + (2\alpha + c)\delta^2\rho] < 0$, the original contract is renegotiation-proof. In this case, even though the manufacturer benefits from renegotiation, the retailer is expected to be worse off.

Renegotiation of a contract can worsen the retailer's situation under the following condition (α is a fixed arbitrary positive):

$$[(\alpha - c)(6 - 5\delta + 6\delta\rho) - (6\alpha - c)\delta^2\rho][(c - \alpha)(2 - 3\delta + 2\delta\rho) + (2\alpha + c)\delta^2\rho] < 0$$

Thus, the original contract is renegotiation-proof for the set of parameter values that fulfill the condition. For a given set (α , c , ρ), the condition is not fulfilled only for relatively high values of δ . It is important to emphasize that in the relatively small range of gamma values in which the condition is not fulfilled, the contract should be upheld only if there are additional factors that prevent renegotiation.

Renegotiation will be profitable for both parties only if it leads the retailer to increase her second-period order quantity beyond q_{2n}^{**} , the quantity that she would have ordered under the original contract. This will occur only if the manufacturer decreases the second-period wholesale price to below w_2^{**} (optimal), the price corresponding to the original contract.

This brings us back to the Coase problem: Under renegotiation, the manufacturer and the retailer will have an incentive to "flood" the market in the second period. If the retailer chooses an order quantity $q_{2n} > q_{2n}^{**}$ as a result of the renegotiation, then prices in the secondhand market will be

lower than the consumers who purchased their products in the first period originally expected. This is considered price gouging, as customers who purchased their products in period 1 paid too high a price, given the level of sales in the secondhand market.

From this discussion, we can draw the conclusion that renegotiation between the manufacturer and the retailer is detrimental to all consumers who purchase the product in period 1. That is, by renegotiating, the manufacturer and the retailer breach their implicit "contracts" with consumers. If we assume, as in [7], that consumers boycott a company that cheats or misleads them, then renegotiation will lead to a situation in which demand in period 2 drops to zero. It is important to emphasize that contract renegotiation comes at the cost of misleading customers and a company that cares about its long-term reputation should avoid such an approach. In the current model, one should note that under the assumption of a long-term contract, the manufacturer's profits in the first period are highest if he leases the product directly to consumers—avoiding the Coase problem and the channel coordination problem. Any renegotiation between the manufacturer and the retailer will lead to higher profits compared with the best-case scenario in the first period. However, we do not expect to see such renegotiation owing to the reasons mentioned above.

6. CONCLUSION

In our analysis, the goal was to analyze whether strategic de-centralization can benefit a manufacturer of a durable product in cases where leasing the product to consumers is not feasible (i.e. the product must be sold and not leased). In this section we will briefly discuss what happens when the retailer can lease some or all of the units. In this case, it can be shown that under a short-term contract the retailer prefers to sell all units. As a result, the manufacturer's optimal solution is the same as that in Proposal 1. Under a long-term contract, the manufacturer's profits do not depend on the retailer's rental strategy. That is, the manufacturer earns the same profit regardless of how many units the retailer decides to lease and his profits are the same as the profits obtained under the best-case scenario referred to in Proposal 2. That is, providing retailers with the option to lease the product and to sell it does not improve or worsen the channel coordination

problem. Therefore, regardless of whether leasing is a feasible option, the highest profit a manufacturer can achieve with a short-term two-part contract is equal to the profit achieved in the centralized supply chain, with no option of leasing. Similarly, regardless of the feasibility of leasing, the highest profit the manufacturer can earn under a long-term two-part contract is equal to the highest profit achievable in the centralized supply chain in which leasing is feasible. Our results show how de-centralization helps mitigate within-brand competition. It would be interesting to more fully explore the role of retailers in the case of cross-brand as well as within-brand competition. We leave these issues for future research.

7. NUMERICAL EXAMPLE

7.1 Proposal 1

In period 1 the wholesale price is greater than/equal to the marginal cost; in period 2 the wholesale price is equal to the marginal cost.

Period 2:

$$w_2=15, c=15, F_2=6, q_{2n}=20, r_{2n}=18$$

The retailer's profits in the second period:

$$\pi_{D2} = (r_{2n} - w_2)q_{2n} - F_2$$

$$\pi_{D2} = (18-15) * 20 - 6 = 54$$

The manufacturer maximizes his profits:

$$\pi_{M2} = (w_2 - c) q_{2n} + F_2$$

$$\pi_{M2} = (15-15) * 20 + 6 = 6$$

Period 1:

$$w_1=15, c=3, F_1=9, q_{1n}=22, P_{1n}=25 (r_{1n}=18, \rho=0.7)$$

The retailer's profits in the first period:

$$\pi_{D1} = (P_{1n} - w_1)q_{1n} - F_1 + \rho \pi_{D2}$$

$$\pi_{D1} = (25-15) * 22 - 9 + 0.7 * 54 = 248.8$$

The manufacturer maximizes his profits:

$$\pi_{M1} = (w_1 - c)q_{1n} + F_1 + \rho \pi_{M2}$$

$$\pi_{M1} = (15-3) * 22 + 9 + 0.7 * 6 = 277.2$$

In our model, under a short-term contract the retailer is not concerned with how the quantity sold in period 1 affects the outcome in the second period; therefore, she has an incentive to order and sell a high number of units in the first period. According to proposal 1, a solution to the Coase problem will increase the manufacturer's profits. Therefore, we consider the case of a long-term contract.

7.2 Proposal 2

Negotiation between the manufacturer and the retailer will lead to profits that exceed the profits gained in the first case. In this case, even though the manufacturer benefits from negotiation, the retailer is worse off.

α - Fixed arbitrary positive

δ - Resistance to deterioration from one period to the next.

c - Marginal cost

ρ - Sales price

8. SUMMARY

Our conclusion is that adding a retail distribution channel to the supply chain increases the profits of the manufacturer (as opposed to marketing the products directly to consumers). The problem presented applies to the case of a durable product and raises two issues: The channel coordination problem and the Coase problem. It seems that a two-part contract without long-term commitment can provide a solution to the channel coordination problem; when the manufacturer relies on a single retailer, he can solve the Coase problem and earn more. Under this type of contract, the manufacturer has an incentive to extract all the retailer's profits in the second period. A long-term contract, on the other hand, that prevents the manufacturer from acting in this way, enables the manufacturer to solve the channel coordination problem and the Coase problem.

9. DIRECTIONS FOR FUTURE RESEARCH

Directions for future research include the following:

- Examination of other types of products aside from durable products.
- Examination of additional factors that affect the manufacturer's profit maker. It is important for each factor to contribute to the firm's success; any factor that does not do so should be addressed immediately. Factors that might affect the manufacturer's profit include the following:
 - Logistics: Are products being shipped efficiently?
 - Production floor: Is production efficient and are there bottlenecks that hinder profitability?
 - Product mix: Are all of the products profitable? What returns are achieved from different products? Is buying performed effectively? Is the company receiving bonuses or only paying them?
 - Warehouses: Testing the efficiency of the warehouse and monthly inventory processes.
 - Sales and marketing: Does the marketing team contribute to or detract from profitability?
- Manufacturing and retail environments are likely to change substantially over the coming years as a result of the technological developments that provide the ability to correctly interpret customers' purchasing behavior. Several trends that we are likely to observe include the following:
 - Technology and digital media are likely to affect the behavior of buyers. Customers' increasing use of digital media and social networking will require manufacturers and retailers to cooperate in order to provide a "value proposal" to the buyer. This entails investment in technological services, advanced POS solutions, self-service stations, e-wallets, providing immediate access to information about products, rapid selection of the retailer.
 - Increased collaboration between manufacturers and retailers: Successful marketing to consumers requires manufacturers and retailers to collaborate, to communicate openly with each other and to work together to respond to changes in consumers' behavior.
 - Future analytical studies should incorporate additional variables, such as product quality and the service level that the retailer provides her customers.
 - Future studies should take into account cases in which leasing is a feasible option.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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