An Explanation for Partial Forward Integration: 
Why Manufacturers Become Marketers

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Abstract

Manufacturers are seeking new ways to exercise control over how consumers experience their brands and the division of responsibility for manufacturing and marketing activities is getting redefined in the process. A significant number of manufacturers now sell their products through company-owned stores as well as through independent retailers. More interestingly, many do so in direct competition with independent retailers (i.e., the retail stores are physically co-located).

We derive conditions under which this strategy is viable and argue that through forward integration and investment in brand-specific marketing effort, the manufacturer can achieve a form of resale price maintenance. That is, the prices charged by independent retailers competing against an integrated retailer (who invests in marketing effort) are higher than the prices charged when competition is between independent retailers only. In the partially integrated channel independent retailers benefit somewhat from the provision of a public good by the manufacturer; the manufacturer benefits from control over retail decision variables. Moreover, we find that the independent retailers’ incentives to improve brand support increases. We also examine the retailing efficiency of the manufacturer-owned store and show conditions under which demand at the company store complements or substitutes demand at independent stores.

The basic results are preserved and additional insights obtained when we extend the model to consider phenomena such as market saturation effects (where an increasing number of retailers compete for a fixed pie) and asymmetric demand at independent and integrated stores. Our model and results also speak to the Internet environment in which “partial forward integration” is fast becoming a norm, as in this medium all stores are by definition co-located in the same physical space. Implications for retail management are discussed.

Key Words: Distribution Channels, Retail Competition, Game Theory.
1 Introduction

“...In the past, manufacturers owned factories and created brands which were purchased and sold by retailers. However, the lines are now blurring and the definition of a brand is being stretched along the supply chain . . .”


Traditional realms of expertise for manufacturers and retailers are clearly becoming intertwined. Once primarily confined to supply-side activities only, the manufacturer is in many domains now a marketer to end consumers. One of the most important trends in this marketing/manufacturing interface is the emergence of partial forward integration as a viable channel strategy. Partial forward integration describes channel arrangements or structures whereby a manufacturer reaches end consumers through independent and company-owned retailers. In this paper, we are interested in a specific type of partial integration: situations where manufacturer-owned outlets and independent retailers operate in the same location (e.g., all stores are in the same mall). Not only is this phenomenon increasingly common in the physical world, but also it is pervasive in the virtual world. On the Internet all stores (whether owned by manufacturers or retailers) are by definition co-located as physical separation by distance no longer exists in this medium.\(^1\)

An example helps to illustrate the phenomenon and setting. Imagine that Mrs Jones goes to the local shopping mall to purchase shoes. The mall department stores carry a variety of brands (A, B, C, etc.) and in addition, the manufacturer of brand A has her own store located in the mall. We provide an explanation for why the manufacturer of brand A would do this, and implicitly, why the independent retailers would tolerate such actions without retaliation (e.g., removing the brand from their own stores). To do so, we compare market outcomes under:

1. Independent Structure (I). In this structure there is a segmentation of activities. The manufacturer designs and produces the good, then contracts with the retailer who takes over the selling activities.

2. Partially-Integrated Structure (P). Independent retailers continue to contract with the manufacturer and perform selling activities. The manufacturer, however, also takes on marketing and selling responsibilities, competing with the independents in the same physical location.

\(^1\)While our theoretical model is motivated by the physical world phenomenon, the setup is a general representation of competition between co-located retailers. As such, it also accommodates competition between manufacturer and retailer-owned sites on the Internet.
Numerous real world examples of partially integrated structures exist for a wide range of consumer products. Goodyear reaches individual consumers in the Mid-Peninsula region of the Bay Area through its Goodyear Tire Center as well as through independent retail stores such as Palo Alto Tire & Brake and Redwood General Tire Service. In the apparel business, Polo Ralph Lauren, DKNY, Liz Clairbourne and Armani are among a number of manufacturers who operate company stores in shopping centers where independent retailers Macy’s and Nordstrom also carry their products. Shoe manufacturers Joan and David, Bally, Dr. Martens and Kenneth Cole also utilize these partially integrated structures. By the end of 2002 Levi Strauss plans to operate close to 100 Original Levi’s Stores and 50 Dockers Shops. One can list a number of other manufacturers (e.g., Coach, Esprit, Guess, Rampage, Unlisted, etc.) from a variety of product categories including leather goods, apparel, cosmetics, etc., that have also adopted this business strategy.

Partial forward integration as a specific form of what is often referred to as “dual distribution” seems hard to rationalize at first glance, as it appears to involve duplication of costs for no apparent return. The presence of an integrated retailer makes no difference to nominal market coverage (i.e., the brand is already available at the independent retailer). Given this one may ask: Why do manufacturers forward integrate in this setting? Conversely, one may also wonder: Why would the independent retailers tolerate this intrusion and not respond by eliminating the manufacturer’s product from their own stores? For the manufacturer, some intuitive rationales come to mind. Forward integration facilitates benchmarking the performance of independent retailers, and/or allows the manufacturer to serve a different segment. In this paper, we explore a different rationale that we believe is especially important for manufacturers of differentiated consumer products, for whom branding and marketing effort are positively related to retail prices. We argue that manufacturers forward-integrate and invest in marketing effort in order to provide price support for independent retailers. In doing so, they also make it more attractive for these independents to

\footnote{While we motivate our analysis by starting with the manufacturer, the implicit tolerance on the part of the independent retailer is also reconciled by our results. We thank an anonymous reviewer for this observation.}

\footnote{This is likely to be true when manufacturers operate factory outlets that are geographically distant from the independent retailer (Ahn, Deunyas and Zhang 2002). When the stores are in the same mall, one could make the case that the company-owned store serves the highly “brand loyal” customers who do not value breadth of brand assortment.}
undertake their own brand-specific investments on behalf of the manufacturer.

While we focus on a channel strategy rationale for partial forward integration, it is important to briefly consider relevant legal issues. When the manufacturers and retailers compete in the same retail area, there is controversy about possible adverse consequences for these independent retailers who face competition from integrated outlets. Of particular interest is “price-squeezing” by the manufacturer. The basic idea is that the integrated manufacturer can, by diverting all or a portion of a wholesale price increase to marketing activities at the retail level (e.g., price promotion), make life very difficult for the independent retailer. Mixed channels can also create horizontal combinations or conspiracies (e.g., Industrial Buildings Material vs. Inter-Chemical Corp., 1970). The overall problem is a blurring between vertical and horizontal restraints on trade. For this reason, manufacturer activities such as suggesting retail prices (resale price maintenance), establishing territorial boundaries, segregating specific accounts for themselves, etc., have been subject to legal challenge and prohibited in many cases. The results from our theory do not rely on such explicit and potentially illegal mechanisms. Rather, we show that partial vertical integration can induce independent retailers to set higher prices in equilibrium and therefore implicitly achieve a form of retail price maintenance.

Contribution and Organization

The model setup draws on work in franchising (e.g., Lal 1990) and brand competition between retailers and manufacturers (e.g., Raju, Sethuraman and Dhar 1995), and retail demand is driven by prices and marketing effort. We derive equilibrium conditions that allow us to address the following questions: Do independent retailers charge more when they compete only against other independents, or when they compete against independents and an integrated retailer? When do independents invest more in marketing effort? We also make comparisons within the partial structure itself: Who invests more in marketing effort — the integrated retailer or the independent retailer? Who has higher prices?  

4See, for example Coleman Motor Co. vs. Chrysler Corp., 1975; Columbia Metal Culvert Co. vs. Kaiser Aluminum, 1978; U.S. vs. Alcoa 1945.

5There is no need to compare retailers within the independent channel because in that case the equilibrium values are symmetric: All independent retailers set the same optimal price and effort levels.
Our key contributions are as follows. First, we provide a formal analysis of a relatively new institutional setting: a partially integrated channel with retail competition in prices and marketing effort. In doing so, we show that partial forward integration allows the manufacturer to raise the floor for retail prices of independent retailers without having to resort to formal contractual arrangements for resale price maintenance. The partially integrated manufacturer makes investments in retailing activities that have a “public good” quality and in return gains some control over retail decisions (and benefits from the resulting higher retail prices charged by independents). Second, we show how the relative efficiency of the manufacturer’s retail operation interacts with demand characteristics to cause either a complementary or substitute relationship with the demand at independent stores. Third, our model and results help provide some understanding of “partial integration” on the Internet. Manufacturers were initially reticent to enter this space for fear of channel conflict, and in many instances independent retailers actively discouraged them from doing so. From our analysis, it is clear that partial integration can in fact benefit independent retailers, provided the appropriate strategy is followed. Finally, we perform a comprehensive series of extensions to the basic model that allow for: (1) any number of competing retailers, (2) market saturation effects where an increasing number of retailers compete for a fixed pie, and (3) asymmetric base demand endowments for manufacturer-owned and independent retailers.

We offer one plausible rationale for the partially-integrated channel. We do not seek to rule out other explanations (e.g., consumer heterogeneity in brand loyalty, manufacturer information acquisition, retailer benchmarking, market testing, etc.). While we collect and present some empirical data for key model results, we do not pursue an extensive econometric test of the model’s predictions. The remainder of the paper is as follows. Section 2 motivates the topic and section 3 develops the model, key theoretical results, and extensions to the basic model. In section 4, we discuss the implications for research and management practice; section 5 concludes the paper.

2 Background and Motivation

We briefly review findings from the marketing literature on channel structure and channel coordination and highlight why structural arrangements (e.g., the partially-integrated chan-
nel) can be used to achieve a specific coordination goal (e.g., retail price support). For the purposes of brevity and consistency with our own model, we restrict our attention to formal analytical approaches to these issues.⁶

Channel Structure

*Channel structure* refers to how the players are arranged in the system. Several researchers (e.g., Choi 1991; Coughlan 1985; McGuire and Staelin 1983; Moorthy 1988; Trivedi 1998) have studied how different channel arrangements influence price-setting and competition and considerable attention has been paid to the manufacturer’s decision to either sell direct or use independent retailers. One key finding is that the decision to integrate depends on the uniqueness of the manufacturer’s product—highly substitutable products tend to be sold through independent retailers in a decentralized system (e.g., see McGuire and Staelin, 1983). Moreover, Coughlan (1985) suggests that manufacturers may use middlemen in order to mitigate direct price competition at the manufacturer level, while Choi (1991) extends the earlier work by considering retailers who carry an assortment of products from multiple manufacturers.

Purohit (1997) considers manufacturers who sell through dealers and car rental agencies and studies arrangements that can be used to minimize channel conflict. In an extensive analysis of distribution channels with both manufacturer and retailer competition, Trivedi (1998) introduces the notion of “store substitutability” and obtains the McGuire and Staelin (1983) results as a special case. In summary, most articles focus on a comparison of integrated versus independent channels and the predominant marketing variable studied is price. Trivedi (1998) reaches a similar conclusion and suggests future work in this vein consider other marketing variables and analyze asymmetric channel structures (as we do in this paper).

Channel Coordination

*Channel coordination* encompasses the extent to which channel member activities are in

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⁶Others have addressed related issues using organizational theory and transaction cost analysis. See for example, Anderson (1985), Bradach (1997) and Brickey, Dark and Wesibach (1991).
alignment and are mutually beneficial. Because manufacturers and retailers are often independent entities, there is considerable opportunity for conflict and “local optimization” of important marketing decisions (Eliashberg and Michie 1984; Jeuland and Shugan 1983; Robbins, Speh and Mayer 1982). In a specific example related to setting price and service levels\textsuperscript{7}, Winter (1993) shows that independent retailers consider the wrong margins (from the manufacturer’s point of view) in making their optimal marketing decisions. This leads to excessive retail price competition and under-provision of service.

Lal (1990) obtains a similar insight studying channel coordination within a franchising context. He shows that franchisees who can affect retail demand through service effort may free-ride on each other.\textsuperscript{8} While these negative horizontal effects are important (i.e., all retailers suffer) they are not the key concern in this paper. Rather, we are interested in how opportunities for horizontal free-riding can negatively affect the manufacturer, and why he might chose to get involved in marketing and retailing in order to mitigate these externalities. In the franchising case the franchiser (manufacturer) suffers potential harm because given the mutual threat of horizontal free riding, franchisees are unwilling to invest in brand development. There are a variety of mechanisms manufacturers can use to achieve compliance and coordination in this setting including monitoring systems (e.g., “surprise visits” to franchisee outlets) and contractual arrangements that bind both parties to invest in minimal marketing efforts. While contractual arrangements can be used to achieve a coordination objective, we consider a different approach and explore how structural changes can have a similar effect. The next section develops the model and provides an equilibrium analysis.

\textsuperscript{7}In this paper, we use the term “marketing effort” to refer to brand-building activities by the retailer. These include hiring knowledgeable salespeople, undertaking advertising, increasing the quality and scope of displays, etc. In the economics literature, the term “service” is often used in the same way.

\textsuperscript{8}For example, imagine that two McDonald’s restaurants are located in close proximity and both are owned by franchisees. If one franchisee chooses to invest in local television advertising for McDonald’s products, while the other does not, both restaurants still benefit from an increase in demand. If each knows it can benefit from investments made by the other, in equilibrium neither may invest in advertising.
3 Model and Analysis

We begin with the model assumptions and proceed to develop an equilibrium analysis for the independent (I) and partially integrated (P) structures. Equilibrium outcomes under each channel structure are compared to provide the key theoretical results. For ease of exposition, we perform the initial analysis in a relatively simple setting in which there are three retail players. In the final subsections we extend the model to capture three more general settings: (1) the case of \( n > 3 \) retailers, (2) market saturation effects, and (3) asymmetric base demand. These more complex situations will be explained in detail subsequently, however, it is important to note here that the key results are qualitatively preserved.

3.1 Model Assumptions

The institutional setting for the model is as described so far in the previous sections. The model itself relies on standard assumptions about demand (e.g., Bhardwaj 2001; Choi 1991; Chu and Desai 1995; Iyer 1998; McGuire and Staelin 1983; Trivedi 1998) and in particular, parallels Lal (1990). The manufacturer produces a single product that is carried by the retailers. He sets the wholesale price of the product, \( w \), and has a marginal cost of production, \( c \), which we normalize to zero. There are no additional terms of trade. Competing independent retailers decide on a retail price, \( p \), and the level of marketing effort, \( e \). Marketing effort captures all elements of value added to the brand at the retail level (namely, salesperson effort, retailer advertising, in-store displays, etc.). An independent retailer can positively influence its own demand for the manufacturer’s product by investing in knowledgeable salespeople, devoting additional floorspace to the brand, etc. The purchase of a Ralph Lauren suit at Macy’s, for example, may depend upon the salesperson’s ability to explain product quality and features to the consumer, or on an in-store display.

Marketing effort provides a benefit not only to the investing retailer, but also to other

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9 The proofs for all results are contained in a Technical Appendix available from the authors.
10 Lal models marketing effort (or “service” as he terms it) as a discrete variable with high and low values, while we treat it as continuous and differentiable.
11 We do not consider contractual mechanisms such as franchise fees or two-part tariffs (e.g., Ingene and Parry 1995). Our interest is in analyzing partial vertical integration — the contractual relationship between entities in this structure does not include two-part tariffs.
competing retailers who are located in close physical proximity: Retailer \( j \) may make the sale, even though it was retailer \( i \)'s salesperson who first informed the customer and influenced the purchase decision. For a market consisting of \( n = 3 \) retailers, the demand at retailer \( s \) is

\[
q_s = 1 - p_s + \frac{\theta}{n-1} \sum_{s' \neq s} (p_{s'} - p_s) + \epsilon_s + \frac{\beta}{n-1} \sum_{s' \neq s} \epsilon_{s'}.
\]

(3.1)

The demand function has three important features. First, the average price difference between the focal store \( s \) and the competing stores \( s' \neq s \) is positively related to demand at store \( s \). We have scaled the own-price responsiveness to one and assume that \( 0 < \theta < 1 \) (e.g., Lal 1990). An attractive feature of Equation (3.1) is that using differences in price is consistent with individual utility maximization behavior (Raju, Seethuraman and Dhar 1995; Shubik and Levitan 1980). Second, the average level of marketing effort by competing stores is positively related to demand at the focal store \( s \). This reflects the fact that when stores are in close proximity shoppers can easily accumulate knowledge about the manufacturer’s product by visiting more than one store. \( \beta \) is an “effort spillover” parameter that captures how much shoppers remember the stimuli associated with marketing effort from other stores.\(^{12}\) The magnitude of \( \beta \) is likely to be related to the distance between stores, etc., and we assume that \( 0 < \beta < 1 \). Third, total market demand is equal to the number of stores when all prices and effort levels are equal to zero. (In the concluding subsections we will rescale the demand function such that total market demand is always equal to one when all prices and effort levels are equal to zero and show that while the parameter values change, the main theoretical results are qualitatively identical.) Equation (3.1) therefore represents a demand function that is both consistent with the pervasive forms in the literature and is in many respects more general.\(^{13}\)

For simplicity, we will begin by considering two cases that are representative of the institutional settings under investigation: \( s, s' \in I = \{i, j, k\} \), and \( s, s' \in P = \{i, j, m\} \).

\(^{12}\)We have assumed that marketing effort is not confined to purely private effects. In any instance where this is true (e.g., when retailers have exclusive territories or consumers cannot cross-shop) our model will not hold.

\(^{13}\)Almost all related literature has demand that is linear in price alone. The additive separability of price and service (or marketing effort) was assumed by Lal (1990), a study that is somewhat unique because it considers marketing inputs other than simply price. Moreover, our demand function is more general than Lal’s because: (1) it allows for continuous rather than discrete levels of service/marketing effort, (2) a convex cost function of effort is an explicit part of the optimization, and (3) we consider \( n \) retailers rather than simply two. Bhardwaj (2001) assumes (1) and (2) in a two-firm, two-agent setting.
where \( I \) denotes the setting of three independent retailers \( i, j \) and \( k \), and \( P \) denotes the setting of partial forward integration, which involves two independent retailers \( i \) and \( j \) and one company store, \( m \). The analysis also focuses on what we shall term the “replacement” strategy, where the number of retailers is held constant across the two settings (i.e., under the forward integration case, one of the independent retailers is simply “replaced” with an integrated retailer). This assumption will later be relaxed to consider the case in which the introduction of an integrated retailer adds to the number of existing retailers.

### 3.2 Independent Retailers Only (\( I \))

A single manufacturer sells to three independent retailers. The manufacturer announces the wholesale price, \( w \), in the first stage of the game. Retailers take the wholesale price as given and maximize profits choosing price and marketing effort simultaneously in the second stage as follows

\[
\max_{p_i, e_i} \Pi_i = (p_i - w - r_i)q_i(p_i, p_j, p_k; e_i, e_j, e_k) - C(e_i)
\]

(3.2)

where \( C(e_i) = e_i^2 \) and \( q_i \) follows equation (3.1).

(3.3)

In Equation (3.2) \( r_i \) is the per unit retailing cost. In this first case, we assume these retail costs are equal across the independent retailers, so we set them to zero without loss of generality. In the subsequent partial forward integration case we will relax this assumption and discuss the implications of doing so. In (3.3) the costs of marketing effort are convex, reflecting marginal diseconomies associated with increasing investments on behalf of a given manufacturer’s brand (e.g., Bhardwaj 2001). Costs are convex because retailers have a limited number of salespeople, fixed floor space etc., so that it becomes increasingly costly for them to put more and more effort into the brand of a single manufacturer.\(^\text{15}\)

We derive optimal retail decisions as functions of the wholesale price (the manufacturer is the Stackelberg leader) and then solve for the optimal wholesale price, taking these retailer

\(^{14}\)This is the simplest case that preserves competition between independent stores after an integrated store has been introduced (\( n > 3 \) is considered in section §3.5).

\(^{15}\)A more general form of the cost function incorporates a sensitivity parameter for \( e^2 \). Since the qualitative nature of the results remain the same, we restrict the parameter to one. Details are available upon request.
decisions into account. That is, the manufacturer chooses $w$ to satisfy
\[
\max_w \Pi^M = w(q_i(w) + q_j(w) + q_k(w)). \tag{3.4}
\]
The symmetric equilibrium for the independent retailer channel can now be established.\textsuperscript{16}

**Proposition 1** In the independent channel structure $(I)$, the equilibrium wholesale price, retail price and marketing effort level are
\[
\begin{align*}
w^*(I) &= \frac{1}{2} \tag{3.5} \\
p^*(I) &= \frac{1}{2} + \frac{1}{\alpha} \tag{3.6} \\
e^*(I) &= \frac{1}{2\alpha} \tag{3.7}
\end{align*}
\]
where $\alpha = (3 - \beta + 2\theta) > 0$.

**Proof:** See Technical Appendix A.

The equilibrium values including those for demand and profits are given in Table 1.

| Table 1 about here |

The wholesale price is constant because we have formulated the demand function in terms of price differences. The equilibrium retail price increases with the sensitivity to marketing effort provided by other stores ($\frac{\partial p^*(I)}{\partial \beta} > 0$) and decreases when price-based competition intensifies ($\frac{\partial p^*(I)}{\partial \theta} < 0$). Equilibrium marketing efforts $e^*(I)$ respond in the same way, although they are less sensitive to changes in the demand function parameters $\beta$ and $\theta$. The equilibrium results in Proposition 1 play the role of a base case. We now examine what happens when the manufacturer maintains a company store in competition with the independents.

### 3.3 Partial Forward Integration $(P)$

The manufacturer continues to reach end consumers through three retailers, one of which is his own store. We preserve the demand structure given in Equation (3.1), but denote the
\textsuperscript{16}The manufacturer-Stackelberg game is employed extensively in analytical studies (e.g., Raju, Sethuraman and Dhar 1995). Sudhir (2001) finds empirical support for this game form.
third retailer with the letter \( m \) (instead of \( k \)) to indicate that the store is owned by the manufacturer. Notice that we continue to have competition between independent retailers \( i \) and \( j \). As before, these retailers face convex costs of marketing effort and choose optimal prices and effort levels so as to maximize profits (as in Equation 3.2).

The objective function of the manufacturer is now somewhat different. In addition to selecting a wholesale price, \( w \), to charge to the independent retailers, he must also decide on a retail price \( p_m \) and marketing effort level \( e_m \) for his own store. As before, the provision of marketing effort is costly. With these changes in place, we modify the manufacturer’s profit function given in Equation (3.4) to

\[
\max_w \Pi^M = w(q_i(w) + q_j(w)) + (p_m - r_m)q_m - e_m^2.
\] (3.8)

Before deriving the equilibrium solution (see Technical Appendix B), we first analyze how the manufacturer’s efficiency in operating as a retailer influences the outcomes in the partially-integrated channel.

### 3.3.1 Retailing Efficiency at the Company Store

Notice that in Equation (3.8) the manufacturer incurs a per unit cost of retailing, \( r_m \), when managing his own store. Previously, we assumed that independent retailers were equally efficient in merchandizing, such that \( r_i = r_j = r_k = r \) and normalized \( r \) to zero without loss of generality. If one assumes that a manufacturer entering the retail market is as efficient at merchandizing as the incumbents, then \( r_m \) in equation (3.8) can also be set to zero. It is fairly immediate that this assumption will yield lower retailer prices at the manufacturer store relative to the independent retailers — a consequence of the well-known phenomenon of “double marginalization” (e.g., Tirole 1988, p. 174-75). We choose to first allow \( r_m \) to remain as a free parameter and explore the consequences of doing so.\textsuperscript{17}

To see why, recall the institutional phenomenon we are investigating. A retailer like Macy’s carries many brands (not just that of the focal manufacturer), while the company store carries only its own brand. As such, the marginal retailing cost associated with a single manufacturer’s brand at an independent retailer is likely to be lower than the marginal retailing cost at the company store.

\textsuperscript{17}The case of \( r_m = 0 \) will be discussed again in more detail in §3.5.
retailing cost for the company store, which has “all its eggs in one basket”. In their study of
distribution intensity, Frazier and Lassar (1996) lend support to this assumption by noting
that “Should the relationship with the manufacturer terminate, the retailer would be able
to sell the remaining inventory, and salesperson expertise gained through training could be
used in selling competitive brands against the focal brand” (p. 42). Moreover, the retailer
should simply be more efficient in the practice of merchandizing.

Our approach is also consistent with an earlier formal study of dual distribution. In
their monograph on distribution channel arrangements, McGuire and Staelin (1986, p. 207-
210) find a small region of the parameter space in which partial vertical integration is an
equilibrium when players compete in prices.\textsuperscript{18} In an analogous fashion, \( r_m \) plays an important
role in our analysis of the partially integrated channel.

The equilibrium prices and marketing effort levels are obtained as functions of the re-
tailing unit cost at the company store \( r_m \), and the equilibrium demand functions can be
expressed as

\[
q^*_m(r_m) = a(b_1 - c_1 r_m),
\]
\[
q^*_i(r_m) = a(b_2 + c_2 r_m),
\]
for the company store and independent retailers, respectively (note that \( q_i = q_j \)). As shown
in Technical Appendix B, \( a, b_1, c_1 \) and \( b_2 \) are all greater than zero and thus \( q^*_m(r_m) \) is a
decreasing function of \( r_m \) for fixed values of \( \beta \) and \( \theta \in (0, 1) \). It can also be shown that if \( \theta \)
is sufficiently high and \( \beta \) is sufficiently low, \( c_2 > 0 \) (if \( \theta \) is sufficiently low and \( \beta \) is sufficiently
high, \( c_2 < 0 \)). From this we can establish the relationship between the company store’s
retailing efficiency and demand at the independent stores.

The retailing cost at the company store \( r_m \) is the \textit{cost disadvantage} for the manufacturer,
and \( \frac{\partial q^*_i(r_m)}{\partial r_m} \) is interpreted as how the demand at an independent retailer changes as the
company store becomes increasingly inefficient. If price competition is intense and effort
spillover is small, the strategic interaction between independent retailer \( i \) and company store
\( m \) is more competitive in nature, and the demand at the independent store is a substitute for

\textsuperscript{18}Retailers are assumed to have superior “expertise” in retailing, hence there is a cost to the manufacturer
(who is less well suited to the task) when he vertically integrates. If the degree of product substitutability is
not too high and the ratio of the extra costs of going direct relative to total variable profit is high enough,
the partially integrated channel is an equilibrium.
the company store. On the other hand, if the interaction is more cooperative in nature — price competition is not intense and effort spillover is high — the demand at the independent store is a complement for demand at the company store. Consequently, the demand at the independent store decreases with the demand at the company store, as the retailing cost $r_m$ increases.\(^\text{19}\) These relationships are shown in Figure 1.

![Figure 1 about here](image)

Using equations (3.9) and (3.10) we can show that

$$q^*_m(r_m) - q^*_i(r_m) = a[(b_1 - b_2) - (c_1 + c_2)r_m], \quad (3.11)$$

where $b_1 - b_2$ and $c_1 + c_2$ are positive constants for any given $\theta$ and $\beta$. Thus, if $r_m$ is assumed to be zero, it is always true that $q^*_m > q^*_i$. As alluded to previously, this is a direct consequence of avoiding the problem of double marginalization at the company store without incurring additional costs. This is important point because allowing $r_m$ to be endogenous at $q^*_m(r_m) = q^*_i(r_m)$ rules out the rationale of justifying a company store on the grounds of obtaining a dominant market share.\(^\text{20}\) Furthermore, the condition $q^*_m(r_m) = q^*_i(r_m)$ is required if we wish to make meaningful comparisons between the symmetric equilibrium results given in Proposition 1 and those for the partially-integrated channel. Employing $q^*_m(r_m) = q^*_i(r_m)$ uniquely determines the equilibrium level of the retailing cost as

$$r^*_m = \frac{b_1 - b_2}{c_1 + c_2} = \frac{6 - \beta^2 + (11 - 2\beta - \beta^2)\theta}{12 - 4\beta - \beta^2 + 2(13 - 4\beta - \beta^2)\theta + (11 - 2\beta - \beta^2)\theta^2}, \quad (3.12)$$

which is greater than zero. The interpretation is intuitive: Given that the company store avoids the problem of double marginalization, the manufacturer can tolerate some degree of relative inefficiency in retailing. The presence of a company-owned store will not necessarily result in price-squeezing by the manufacturer.

The level of tolerable retailing cost $r^*_m$ is lower for products that compete intensely on retail prices ($\frac{\partial r^*_m}{\partial \theta} < 0$). That is, the manufacturer would need to be a more efficient retailer

\(^{19}\)Formally, $\frac{\partial q^*_m(r_m)}{\partial r_m} > 0$ when price competition is intense and effort spillover is small and $\frac{\partial q^*_i(r_m)}{\partial r_m} < 0$ when price competition is not intense and effort spillover is high.

\(^{20}\)One could also impose other conditions (e.g., that the independent retailers make profits equivalent to those for the independent channels, etc.). Such issues will be discussed in §3.5. Alternatively, the condition could be viewed as a policy preset by the manufacturer in order to not disturb the balance of market shares.
in this circumstance. Conversely, it is higher for products where effort spillover is high \( \frac{\partial r_m^*}{\partial \beta} > 0 \), suggesting that the manufacturer has more leeway in such an instance. Figure 2 shows the behavior of \( r_m^* \) given in Equation (3.12) as just described, namely that the acceptable level of retailing inefficiency decreases with increased price sensitivity (\( \theta \)) and is higher for higher effort spillover (\( \beta \)).

![Figure 2 about here]

3.3.2 The Partial Integration Equilibrium

The equilibrium for the partially integrated channel structure can now be established.

**Proposition 2** In the partially-integrated structure channel \((P)\), the equilibrium wholesale price, retail price and marketing effort for the independent retailers, and the retail price and marketing effort for the manufacturer store are

\[
\begin{align*}
\text{Proposition 2} \quad & \text{In the partially-integrated structure channel (P), the equilibrium wholesale } \\
& \text{price, retail price and marketing effort for the independent retailers, and the retail price and } \\
& \text{marketing effort for the manufacturer store are} \\
\text{w}^*(P) &= \frac{(3 - \beta + 2\theta)(2 + 3\theta)}{\alpha'} \quad (3.13) \\
p_i^*(P) = p_j^*(P) &= \frac{(5 - \beta + 2\theta)(2 + 3\theta)}{\alpha'} \quad (3.14) \\
e_i^*(P) = e_j^*(P) &= \frac{2 + 3\theta}{\alpha'} \quad (3.15) \\
p_m^*(P) &= \frac{10 - \beta^2 + 21\theta - 2\beta\theta - \beta^2\theta + 6\theta^2}{\alpha'} \quad (3.16) \\
e_m^*(P) &= \frac{(1 + \beta)(1 + \theta)(2 + 3\theta)}{\alpha'} \quad (3.17)
\end{align*}
\]

where \( \alpha' = 12 - 4\beta - \beta^2 + 26\theta - 8\beta\theta - 2\beta^2\theta + 11\theta^2 - 2\beta^2\theta - \beta^2\theta^2 > 0 \).

**Proof:** See Technical Appendix B.

The equilibrium values including those for demand and profits are given in Table 2.

![Table 2 about here]
3.4 Comparison

The equilibrium values in Propositions 1 and 2 provide the basis for an initial comparison of independent and partially-integrated channels. Two comparisons are of special interest. First, we examine how the introduction of the company store affects what the independents do. That is, how are their optimal price and effort levels influenced by this new source of competition? Second, within the partially integrated channel itself, we examine the behavior of the company store relative to the independent retailers. Who charges more or puts in more effort: The company store or the independent?

Result 1a: The company store charges the highest price, followed by the independent competing against the company store. Independent retailers who do not face competition from company stores charge the lowest prices. That is, \( p^*_m(P) > p^*_i(P) > p^*_i(I) \).

Result 1b: The relative ordering of optimal levels of marketing investment follows that for prices: \( e^*_m(P) > e^*_i(P) > e^*_i(I) \).

Proof: For Result 1a, notice that \( p^*_m(P) \) and \( p^*_i(P) \) can be decomposed as \( p^*_m(P) = \frac{1}{2} + \frac{1}{\bar{\alpha} + \alpha + x_1 + x_2} \) and \( p^*_i(P) = \frac{1}{2} + \frac{1}{\alpha} + x_1 \), where \( x_1 = \frac{(2+\alpha)(\beta+\theta+\beta)}{2\bar{\alpha}\alpha'} \), and \( x_2 = \frac{(2+\beta)(\beta+\theta+\beta)}{\alpha' \alpha} \). Therefore, \( p^*_m(P) = p^*_i(P) + x_2 \) and \( p^*_i(P) = p^*_i(I) + x_1 \). Since \( \alpha, \alpha', \theta \) and \( \beta > 0 \), we have \( x_1 \) and \( x_2 > 0 \). Thus \( p^*_m(P) > p^*_i(P) > p^*_i(I) \). Similarly, for Result 1b \( e^*_m(P) \) and \( e^*_i(P) \) can be decomposed as \( e^*_m(P) = \frac{1}{2\alpha} + y_1 + y_2 \) and \( e^*_i(P) = \frac{1}{2\alpha} + y_1 \), where \( y_1 = \frac{(\beta+\theta+\beta)}{2\alpha' \alpha} \), and \( y_2 = \frac{(2+\beta)(\beta+\theta+\beta)}{\alpha' \alpha} \). Thus \( e^*_m(P) = e^*_i(P) + y_2 \), and \( e^*_i(P) = e^*_i(I) + y_1 \). Since \( \alpha, \alpha', \theta \) and \( \beta > 0 \), we have \( y_1 \) and \( y_2 > 0 \). Therefore \( e^*_m(P) > e^*_i(P) > e^*_i(I) \).

A nice feature of these results is that the relationships are unambiguous (i.e., strict inequalities) and there is no dependence on critical values of the exogenous demand function parameters \( \theta \) and \( \beta \). Together, Results 1a and 1b provide an interesting picture of market outcomes in the partially integrated channel with co-located company stores and independents. The integrated company store partially subsidizes the independent retailers by providing more investment in brand-building activities. All retailers benefit from increased investment by any one of them (\( \beta > 0 \) in Equation 3.1), so independent retailers are encouraged to increase investments when competing with company stores (i.e., \( e^*_i(P) > e^*_i(I) \)).
This increased attention to marketing effort serves to reduce the emphasis on price-based competition.

By partially forward integrating with a co-located store, the manufacturer also provides implicit price support for the independents. In the absence of the company store, independents reduce marketing effort and compete more heavily in prices. Thus, the company store causes a degree of “resale price maintenance” without recourse to explicit arrangements that would violate anti-trust laws. This result is especially interesting when one considers the ultimate co-location medium: the Internet. Results 1a and 1b suggest that a manufacturer setting up a website should charge higher prices than multi-product independents who sell his brand and should also invest substantially more in marketing effort (e.g., provide more product related information on the site, etc.). Furthermore, our results suggest that in the absence of the manufacturer site, independent retailer sites will set lower prices for his brands. Many branded goods manufacturers eschewed the Internet for fear of alienating traditional channels; our results imply that this fear may have been misplaced. It is possible for the company store site to add value for independent retailers and in fact allow them to charge higher prices than they otherwise would be able to.

It is useful to note that we have developed the model in the simplest possible setting that retains competition between independent retailers in the partially integrated channel. Moreover, we have employed a demand function with the feature that total market demand is equal to the number of retail outlets when $p_s = e_s = 0 \ \forall s$, and have considered partial integration as a “replacement” strategy where the number of retailers is held constant in the comparison of the two channel settings. One might reasonably ask whether the key results are robust to important extensions and perturbations. We now consider several of these: (1) the case of $n > 3$ retailers, (2) market saturation effects where the company store is introduced as an addition to the existing number of outlets and where total demand is constrained to equal one at zero levels of marketing inputs, and (3) asymmetric base demand endowments for manufacturer-owned and independent retailers. In addition, we implicitly consider issues such as fixed cost thresholds for introduction of a company store (i.e., conditions under which the partial forward integration strategy is more profitable than the pure independent-retailer only strategy) and provide additional discussion regarding retailing costs.
3.5 Extensions to the Basic Model

The basic model was presented with a view to exposition. In this section, we show how the qualitative nature of the key results does not change with substantive modifications to the assumptions and model setup. While in some instances the algebra is greatly complicated, we are still able to obtain the results in closed form. Each of the previously described extensions is now discussed in turn.

3.5.1 \( n > 3 \) Retailers

This first extension is straightforward. Under the demand function of Equation (3.1), it is immediate that with the exception of manufacturer profits, all results for the independent retailer case are unchanged. \( \Pi^M(I) = \frac{3(1+\theta)n}{2n} \) in this case (note that profits are now scaled by the number of retailers, \( n \)). The partial forward integration case is slightly more complex. Following the line of analysis on the relative efficiency of the manufacturer’s retail store (given in §3.3.1) we obtain the analogue of Equation (3.12) as

\[
r_m^*(n) = \frac{b_1(n) - b_2(n)}{c_1(n) + c_2(n)} \text{ which can be expressed as}
\]

\[
\frac{3(n-1) - \beta^2 + (4n - 1 - 2\beta - \beta^2)\theta}{2(n-1)(3 - \beta) - \beta^2 + 2(5n - 2 - \beta - n\beta - \beta^2)\theta + (4n - 1 - 2\beta - \beta^2)\theta^2},
\]

which in turn can be shown to be greater than zero (see Technical Appendix C). From this, the equilibrium values for decision variables and profits follow immediately. Given that we now deal with \( n \) retailers, we will differentiate between what we have so far termed the “replacement” strategy where the total number of retailers is held fixed under both channel arrangements and the “addition” strategy where the partial structure has one additional retailer — the manufacturer-owned outlet.\(^{21}\) The important substantive conclusions from these extensions are summarized in Proposition 3.

**Proposition 3** The results \( p_m^*(P) > p_i^*(P) > p_i^*(I) \) and \( e_m^*(P) > e_i^*(P) > e_i^*(I) \) when \( n = 3 \) continue to hold when \( n > 3 \) and the manufacturer still makes positive incremental profits.

\(^{21}\)The consideration of the addition strategy here is a prelude to our subsequent analysis of market saturation effects (i.e., where a company-owned store potentially crowds the market when all retailers are competing for a fixed pie).
from partial integration. Specifically, (a) with replacement $\Pi^{M^*}(P)_{\{n-1,1\}} - \Pi^{M^*}(I)_{\{n\}} > 0$ (where $\{n-1,1\}$ indicates the number of independent and company-owned retailers, respectively), when $\theta$ and $\beta$ are sufficiently large, and (b) with addition $\Pi^{M^*}(P)_{\{n,1\}} > \Pi^{M^*}(I)_{\{n\}}$.

As one might intuitively expect, the region where $\Pi^{M^*}(P)_{\{n-1,1\}} - \Pi^{M^*}(I)_{\{n\}} > 0$ becomes smaller as $n$ increases (Figure 3).

To this point we have not explicitly considered the overall viability of the forward integration strategy. One can easily deduce the relevant fixed cost thresholds for profitable introduction of a company store by comparing profits to the manufacturer under the two channel structures. Clearly, if the costs of opening the company store outweigh the incremental profits then the partial structure will not be an equilibrium. While the algebraic expressions that support Proposition 3 and allow derivation of the thresholds are somewhat complicated, the conceptual notion is straightforward. Letting $A$ and $B$ be fixed cost thresholds for replacement and addition, when $\Pi^{M^*}(P)_{\{n-1,1\}} - \Pi^{M^*}(I)_{\{n\}} > A$, it is profitable for the manufacturer to “replace” an existing independent retailer. When $\Pi^{M^*}(P)_{\{n,1\}} - \Pi^{M^*}(I)_{\{n\}} > B$, it is profitable for the manufacturer to add a new store. Replacement is better than addition if $\Pi^{M^*}(P)_{\{n-1,1\}} - \Pi^{M^*}(P)_{\{n,1\}} > A - B$. We can show that $\Pi^{M^*}(P)_{\{n-1,1\}} - \Pi^{M^*}(P)_{\{n,1\}} > 0$.

An immediate implication is that if $A \leq B$ the replacement strategy is the better choice. It is also important to note that conditional upon the viability of the partial integration structure, independent retailers are also more profitable in this setting. That is, $\Pi^{R^*}(P) > \Pi^{R^*}(I)$ under both replacement and addition. This is consistent with the notion that when partial forward integration occurs, it is implicitly tolerated by the independent retailers.

### 3.5.2 Market Saturation and Asymmetric Demands

While the results given in Proposition 3 and illustrated in Figure 3 provide some sense of what might happen if the introduction of a company store led to crowding or market saturation, this analysis can be be pursued under more stringent conditions. Specifically, we now rescale the demand function such that total demand will be exactly equal to one when
\( p_s = e_s = 0 \) \( \forall s \). In this instance, the introduction of a company store under an addition strategy forces the retailers to compete more intensely for a fixed pie. Furthermore, one can also see that the number of stores, \( n \), will have an impact on the viability of any partial integration strategy, whether it be by replacement or addition. For this analysis, the demand function of Equation (3.1) is modified as follows

\[
q_s = \frac{1}{n} - p_s + \frac{\theta}{n-1} \sum_{i \neq s} (p_i - p_s) + e_s + \frac{\beta}{n-1} \sum_{i \neq s} e_i. 
\]

Under the independent channel structure the equilibrium results of Proposition 1 are now altered and reflect the anticipated dependence on \( n \), the number of retailers. The new values are

\[
p^* = \frac{1}{2n} + \frac{1}{n\alpha}, e^*_i = \frac{1+\theta}{2n\alpha}, q^*_i = \frac{1+\theta}{1+\alpha}, \text{ and } \Pi^M(I) = \frac{(1+\theta)}{2n\alpha}, \text{ where } i = 1, \ldots, n \text{ and } \alpha = 3 - \beta + 2\theta, \text{ and reflect lower prices, effort levels, and profits that result from the crowding of more retailers in the market.}
\]

In analyzing the partially integrated channel, we will incorporate one additional feature such that for the company-owned retailer the demand function is not given by Equation (3.19) but by

\[
q_m = \frac{h}{(n-1) + h} - p_m + \frac{\theta}{n-1} \sum_{i \neq m} (p_i - p_m) + e_m + \frac{\beta}{n-1} \sum_{i \neq m} e_i,
\]

where the base level of demand for the company store is \( \frac{h}{(n-1) + h} \), and the corresponding base level of demand at each of the \( n-1 \) independent stores is \( \frac{1}{(n-1) + h} \). The parameter \( h \) is used to model asymmetry between independent retailers and the company store. The company store has a higher base level of demand if \( h > 1 \). Note that the total base level demand for all \( n \) stores is \( \frac{1}{(n-1) + h}(n-1) + \frac{h}{(n-1) + h} \), which equals 1 when prices and effort levels are all zero.

As noted above, when the market size is held fixed, increasing the number of retailers increases the level of competition and induces saturation effects. It remains to be seen whether a manufacturer can profitably follow a partial integration strategy in this setting. For the subsequent analysis \( r_m \) is treated as a free parameter and the equal market share condition is not imposed. Again following the convention that \( r_m \) denotes the retailing cost at the manufacturer’s store, it is possible to show that a positive profit gain (exclusive of fixed costs of entry into the retail market) from partial forward integration over an independent channel structure occurs when

\[
\Pi^M(P)|_{\{n-1,1\}} - \Pi^M(I)|_{\{n\}} = a'r_m^2 - b'r_m + c' > 0.
\]

(3.21)
(See Technical Appendix D.) \(a_1', b_1', c_1'\) are positive constants, so this implies that \(r_m\) must be less than some critical level \(r_m^*\) for Equation (3.21) to be satisfied. That is, retailing efficiency at the company store has to be sufficiently high in order for the manufacturer to be better off moving to a partially integrated channel. Even if this profitability condition is met, it is also important to consider the equilibrium behavior in this environment. Recall that Proposition 3 shows prices will be highest at the company store operating under partial integration, \(p_m^*(P) > p_l^*(P) > p_l^*(I)\), and that this result was obtained for the \(n\) retailer setting but under the demand conditions of Equation (3.1). Under equations (3.19) and (3.20) the company store charges a higher price than the independent store when

\[
p_m^*(P) - p_l^*(I) = b_2 r_m - a_2 > 0. \tag{3.22}
\]

Again, \(a_2'\) and \(b_2'\) are positive constants so we must have \(r_m\) greater than some critical value \(r_m^*\) in order for (3.22) to be satisfied. Combining the profitability and “higher price” conditions we immediately see that if \(r_m < r_m^*\), (3.21) and (3.22) cannot be satisfied at the same time.

**Result 2a:** With replacement, (3.21) and (3.22) cannot be satisfied at the same time if \(\beta\) is not sufficiently high for a given \(\theta\).

**Result 2b:** When \(h > h^* > 1\), (3.21) and (3.22) are always satisfied at the same time.

**Result 2c:** The profit gain \(\Pi^{M^*}(P)|_{\{n-1,1\}} - \Pi^{M^*}(I)|_{\{n\}}\) decreases with \(n\), even if \(r_m = 0\).

Result 2a says that when the effort spillover is moderate, it is difficult for the manufacturer store to simultaneously be more profitable under partial integration and charge higher retail prices. Result 2b shows that if demands are asymmetric and the company store can attract a larger base number of shoppers for the brand, both the pricing and profitability requirements can be met. Result 2c complements the finding illustrated in Figure 3. That is, the room for potential profit gain is more constrained when there are more stores competing in the market, even when the company store is as efficient at retailing as its independent competitors.

### 3.5.3 Further Analysis of Retailing Efficiency

We have argued that the manufacturer-owned store and the independent retailers are qualitatively different retail outlets and have represented this difference through the retail cost...
parameter $r_m$. If one simply assumes that all retail stores are identical and sets $r_m = 0$ by assumption, price squeezing is likely. Specifically, the manufacturer outlet always charges lower prices than the independents and always invests more in marketing effort. If the effort spillover parameter is high enough, then independent retailers charge more when they compete against the company store than when they compete only with each other. This is what one would expect and is also consistent with results in Lui and Zhang (2002). They show that when the manufacturer opens an online store he undercuts the physical stores of competing independent retailers who now end up charging higher retail prices as well.

Alternatively, one can also derive the case in which $r_m$ is a manufacturer decision variable to be chosen optimally without restriction (e.g., no constraint on equal market shares across outlets, etc.). The interpretation is that $r_m$ is now an “optimal investment” parameter such that the manufacturer seeks to build a better outlet. The indirect benefits from this investment include the induced retail price and effort maintenance at independents and potentially higher profits. It is possible to show that if $\beta$ is high enough and $\theta$ low enough, there is a range of values for $r_m$ in which Results 1a and 1b continue to hold, and both manufacturers and retailers can make positive incremental profits under partial forward integration.

We now summarize the key insights regarding the effects of partial forward integration. If the manufacturer in the integrated channel has a higher price (effort level) than the independents, we say that a price (effort) premium exists. If the independent retailers charge higher prices (set higher effort levels) in the integrated channel than in the independent channel, we say that price (effort) maintenance has been achieved. The following table shows whether a premium or maintenance is possible under two different conditions: (1) when $r_m = 0$, and (2) when $r_m$ is free, but $\beta$ is sufficiently high.

<table>
<thead>
<tr>
<th></th>
<th>(1) $r_m = 0$</th>
<th>(2) $r_m$ free</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance</td>
<td>If $\beta$ high enough</td>
<td>Yes</td>
</tr>
<tr>
<td>Premium</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

In addition, for (2) above it is also the case when these premium and maintenance conditions
are met, both the manufacturer and the retailers have positive incremental profits under partial forward integration. As noted earlier, the partial forward integration strategy will only be viable for the manufacturer provided that the incremental profit gain exceeds the fixed cost threshold for opening the company store.

In general, the manufacturer may have to make a trade-off between incremental profit gains and the scope of other achievable goals. Specifically, the manufacturer obtains less incremental profit as \( r_m \) increases from zero to some positive value, yet gains in other ways through (say) implicit retail price maintenance, which may be conducive to upholding strategic goals such as the enhancement of brand image, etc. The relationship between \( r_m \) and incremental profits for the manufacturer is shown in Figure 4.

\[\text{[Figure 4 about here]}\]

4 Discussion

We have provided an explanation for an institutional setting that, to our knowledge, has received no formal analytical treatment. Analysis of this institutional setting is important for two reasons. First, branded goods manufacturers are becoming more aggressive in their initiatives to open retail outlets, including “flagship stores”\(^{22}\). Second, the phenomenon of co-located independents and company stores is clearly evident on the Internet. In this environment, physical separation of competitors by distance or geography is no longer possible, lending relevance to the spirit of our model and results. Moreover, in 2001 business-to-consumer commerce grew by more than eighty-five percent, with close to fifteen percent of the volume coming from manufacturer-owned websites (http://www.ecommerce.internet.com).

\(^{22}\)See for example, http://www.icsc.org for recent trends including analysis of moves into retail by Apple, Prada and many other premium brands.
Anecdotal Support for Model Implications

While a formal econometric analysis of the implications of the theory is beyond the scope of the current paper, we have collected anecdotal evidence for Result 1a. The first inequality states that in the partially integrated channel, the company store charges more than the independent retailer, i.e., \( p_m^*(P) > p_i^*(P) \) (price premium). We collected prices at integrated outlets and independent retailers for a convenience sample of 30 products from four different product categories with prices ranging from $59.95 to $315.00 (see below). The independent retailers and integrated stores are physically co-located as all operate out of a large shopping center in Northern California.

<table>
<thead>
<tr>
<th>Category</th>
<th>Sample</th>
<th>Price Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men’s Shoes</td>
<td>8</td>
<td>$59.95 to $127.95</td>
</tr>
<tr>
<td>Men’s Apparel</td>
<td>6</td>
<td>$112.95 to $315.95</td>
</tr>
<tr>
<td>Leather Goods</td>
<td>8</td>
<td>$62.95 to $99.95</td>
</tr>
<tr>
<td>Women’s Apparel</td>
<td>8</td>
<td>$89.95 to $165.95</td>
</tr>
</tbody>
</table>

Twenty-three pairs of prices were for identical stock keeping units (i.e., same color, size, model number, etc.) and therefore usable in paired comparisons. By chance alone, one would expect the company store to charge a higher price half of the time. The actual proportion, however, was \( p = 0.74 \) which falls outside the 95% confidence interval. As such, there is some anecdotal support for the idea that company stores will charge higher prices and not price squeeze the independent retailers.

We also collected preliminary data for the second inequality in Result 1a, \( p_i^*(P) > p_i^*(I) \). That is, independent retailers should set higher prices when they are part of a partially integrated channel (price maintenance). We visited two separate shopping malls in the Southern California region and collected price data from each. Our convenience sample of 47 observations again included apparel and shoe manufacturers. We recorded the data in a two-by-two contingency table by first noting whether or not a specific stock keeping unit was selling on a temporary price promotion (Yes/No) and secondly the Presence/Absence of a company store competitor. The data reject independence of the two dimensions (\( p < 0.05 \)) and it appears that independent retailers are more likely to discount the manufacturer’s product when the company store is absent. While our data are entirely anecdotal, it is nevertheless encouraging to see some preliminary evidence to support part 2 of Result 1a.
Partial Vertical Integration on the Internet

One can conceptualize the Internet as a vast shopping mall in which consumers can easily move between an independent retailer (e.g., www.bluefly.com) and a company site (e.g., www.kennethcole.com) to gather price and non-price information about the manufacturer’s brand. Clearly there is potential for competition between these co-located stores. Initially, there were strong concerns about the possibility of channel conflict. Over time, however, some concerns have dissipated as both parties are beginning to understand that much of the conflict can be averted by appropriate site design and positioning (Bobbin, May 2000).

In order to examine our results in this setting, we obtained price and “marketing effort” data for 161 consumer products from 332 different websites. The data were collected as follows. In the second week of March 2002, thirty-two independent assessors from a large East Coast university were instructed to select five specific consumer products (e.g., a washing machine, calculator, etc.) and obtain price information from both the manufacturer’s website and from the site of an independent retailer. In addition, they were asked to judge the quality of product-specific information provision and rate this on a balanced five-point Likert scale (where “1” and “2” indicated “significantly more” and “slightly more” product information at the manufacturer’s site and “3” denoted no appreciable difference between the two). In total, more than twenty different types of products were canvassed, including items such as personal computers, running shoes, computer software, digital cameras, household appliances, PDAs and fashion apparel. A sample of the price and relative effort data is shown below.

In one infamous case, the Wall Street Journal publicized a letter drafted by Home Depot for distribution to their suppliers. Recipients were warned that any supplier found selling direct to consumers over the Internet would have their products pulled from Home Depot shelves.

The full dataset is available from the authors.
The mean prices are $574.12 and $543.79 for manufacturer sites and independent sites, respectively, and the gap between means is significantly different from zero ($p < 0.001$). On average, the manufacturer sites charge a price premium of approximately six percent for the same items. This finding is consistent with the first part of Result 1a ($p_m^s(P) > p_i^s(P)$). While a direct test of the second part of Result 1a ($p_i^s(P) > p_i^s(I)$) is not possible, it is nevertheless worthwhile to speculate on the distribution of prices at independent sites in the absence of the manufacturer site. Our contention is that the presence of the company site helps to keep prices at the independent sites higher than they otherwise would be. This price support argument is also consistent with the following data for Result 1b ($e_m^s(P) > e_i^s(P)$).

For the same 161 products, the average Likert scale rating for relative marketing effort was 2.26. This value indicates that manufacturer-owned sites appear to provide greater levels of product-specific "marketing effort." A statistical test shows that this is significantly different from the neutral point of 3 ($p < 0.001$).

Our results are complementary to the findings from recent work on the Internet and channel conflict, broadly defined. Lal and Sarvary (1999) show conditions under which Internet retailing can lead to a softening of price competition. Lynch and Ariely (2000) demonstrate via an experiment that consumers’ sensitivity to quality can be increased, such that they become less concerned about price, even in this very transparent and low-search cost environment. The broader message from both studies is that some early and initially popular conceptions of how the Internet will affect channel members and consumers may be misplaced. Our findings are in the same spirit: Co-location and partial vertical integration may not be detrimental — rather it can be good for everyone.
5 Conclusion

As lines of distinction in the value chain become blurred, it is important to consider how channel members might broaden their traditional roles and embark on new activities. In this paper, we study why manufacturers may want to expand in a limited way into the retail environment and study this phenomenon with a model that is parsimonious, yet yields a rich class of results in closed form. Conceptually, the paper is similar in spirit to work in salesforce design (e.g., Anderson 1985; Anderson and Schmittlein 1984; Weiss 1992) which explores conditions under which manufacturers partly offload the sales function to agents and at the same time retain some dedicated company employees.

The paper also underscores the important relationship between channel structure and channel coordination goals. It may be possible (perhaps even desirable) to work towards coordination objectives by means other than simply writing different types of contract. Specifically, the results from our research speak to one of the central tensions in distribution strategy: the manufacturer must often trade off the intensity of distribution (i.e., the number of retailers carrying his product) against the quality of the distributors and corresponding standards of retail support. Frazier and Lassar (1996) investigate this issue empirically and find that when manufacturers utilize restrictive contracts, they are often able to obtain intensive distribution — even for high quality brands. Our analytical results provide a complementary insight. Partial forward integration allows the manufacturer to simultaneously pursue intensive distribution and high levels of retail support for his brand.25

The theory offers strong implications for empirical testing and we provide some preliminary data that support key results, however, we have not sought to develop an elaborate econometric model. As such, an empirical analysis of the implications of our theory is an important next step. Agrawal and Lal (1995) is one good example of how a theory such as ours could be subject to a more rigorous empirical test.

The institutional setting could be explored further by considering flagship stores operated in high profile locations (e.g., NikeTown in San Francisco, the Sony store in Manhat-

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25In Frazier and Lassar (1996) increasing the number of retailers is surmised to lead to dilution of quality as more “marginal” retailers are added to the pool. In our model, the negative externality arises because the individual retailer incentive to invest in marketing effort is lowered because of the threat of horizontal free-riding, and the effect is exacerbated as the number of retailers increases.
tan, etc.), or a richer framework with manufacturer-level competition and heterogeneous consumers. The flagship store as a mechanism for relationship-building with customers has been studied recently by Kozinets et al (2002). It may be interesting to explore some of the intuitive rationales (e.g., differences in assortment, customer segments served, etc.) that were deliberately assumed away in this analysis, and to consider in some detail the related operational issues pertaining to inventory management and store management. One might also embark upon analysis of the phenomenon of spatially distinct factory outlets as Ahn, Duenyas and Zhang (2002) have done. We leave such pursuits to future research.
References


[37] U.S. vs. Aluminium Co. of America, 148 f. 2d 416 (2nd cir. 1945).


Table 1: Equilibrium Results for Independent Retailers Only (*I*)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Wholesale price</td>
<td>$w^* = \frac{1}{2}$</td>
</tr>
<tr>
<td>Retail prices</td>
<td>$p_i^* = p_j^* = p_k^* = \frac{1}{2} + \frac{1}{\alpha}$</td>
</tr>
<tr>
<td>Marketing effort</td>
<td>$e_i^* = e_j^* = e_k^* = \frac{1}{2\alpha}$</td>
</tr>
<tr>
<td>Retail demand</td>
<td>$q_i^* = q_j^* = q_k^* = \frac{1+\theta}{\alpha}$</td>
</tr>
<tr>
<td>Manufacturer profit</td>
<td>$\Pi^{M*I} = \frac{3(1+\theta)}{2\alpha}$</td>
</tr>
<tr>
<td>Retailer profit</td>
<td>$\Pi^{R<em>I} = \Pi^{R</em>J} = \Pi^{R*K} = \frac{3+4\theta}{4\alpha^2}$</td>
</tr>
</tbody>
</table>

where $\alpha = 3 - \beta + 2\theta$.

Table 2: Equilibrium Results for Partial Forward Integration (*P*)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Wholesale price</td>
<td>$w^* = \frac{(3-\beta+2\theta)(2+3\theta)}{\alpha'}$</td>
</tr>
<tr>
<td>Retail prices</td>
<td>$p_i^* = p_j^* = \frac{(5-\beta+2\theta)(2+3\theta)}{\alpha'}$</td>
</tr>
<tr>
<td></td>
<td>$p_m^* = \frac{10-\beta^2+2\beta\theta-2\beta\theta+6\theta^2}{\alpha'}$</td>
</tr>
<tr>
<td>Marketing effort</td>
<td>$e_i^* = e_j^* = \frac{2+3\theta}{\alpha'}$</td>
</tr>
<tr>
<td></td>
<td>$e_m^* = \frac{(1+\beta)(1+\theta)(2+3\theta)}{\alpha'}$</td>
</tr>
<tr>
<td>Retail demand</td>
<td>$q_i^* = q_j^* = q_m^* = \frac{2(1+\theta)(2+3\theta)}{\alpha'}$</td>
</tr>
<tr>
<td>Manufacturer profit</td>
<td>$\Pi^{M*} = \frac{(1+\theta)(2+3\theta)^2(15-6\beta-\beta^2+11\theta-2\beta\theta-\beta^2\theta)}{\alpha'^2}$</td>
</tr>
<tr>
<td>Retailer profit</td>
<td>$\Pi^{R<em>I} = \Pi^{R</em>J} = \Pi^{R*K} = \frac{(2+3\theta)^2(4+3\theta)}{\alpha'^2}$</td>
</tr>
</tbody>
</table>

where $\alpha' = 12 - 4\beta - \beta^2 + 26\theta - 8\beta\theta - 2\beta^2\theta + 11\theta^2 - 2\beta\theta^2 - \beta^2\theta^2$. 
Figure 1  Regions for Demand Substitution and Complementation

Region above/below has complementary/substitute demand (infinite number of stores)

Region above/below has complementary/substitute demand (three stores)

Figure 2  Impact of Price Competition and Effort Spillover on Retailing Efficiency

\[ \beta = \frac{1}{3} \]

\[ \beta = \frac{2}{3} \]

\[ \beta = 1 \]

\[ \beta = 0 \]
Figure 3  Region of Incremental Profits for Partial Forward Integration

Feasible regardless of number of stores (exclusive of fixed cost of introduction)

Feasible for the case of three stores (exclusive of fixed cost of introduction)

$n = \infty$

$n = 3$

Figure 4  Impact of Retailing Efficiency on Profitability of Partial Forward Integration

\( (n = 3, \theta = 0.5, \beta = 0.8, h = 1) \)

\[ \Pi^M(P) - \Pi^M(I) \]

Positive incremental profits

Negative demand at company store

Negative incremental profits with positive demand at company store