



## Strategic Online and Offline Retail Pricing: A Review and Research Agenda<sup>☆</sup>

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### Abstract

In the increasingly complex retailing environment, more and more retailers operate in more than one channel, such as brick-and-mortar, catalogs, and online. Success in this dynamic environment relies on the strategic management and coordination of both online and offline pricing. This article provides an overview of findings from past research in both offline and online domains and presents an organizing framework, as well as an agenda to spur additional research.

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In the turbulence of recent months, global economies have faced unprecedented crises in the forms of severe liquidity, fluctuating gas prices, inflation and deflation, massive increases in the cost of goods, foreclosures, soaring unemployment levels, and fluctuations in stock prices. These factors reinforce the need for retailers and manufacturers to manage and coordinate their pricing policies strategically.

Varied and rich streams of retailing research tackle a host of pricing topics, ranging from promotional prices to competitive pricing practices. Yet a lot of the research pertains to the domain of brick-and-mortar retailers, even as the emergence of pure online play (e.g., Amazon) and bricks-and-clicks (e.g., Staples) retailers has grown steadily in the past decade. In particular, retailers have begun using their Web sites for not only transactions but also as advertising vehicles for their brick-and-mortar stores and as hubs for managing customer relationships. Because of these multiple objectives, a retail Web site demands careful management and coordination.

Several review articles summarize key insights from the retailing domain (e.g., Ailawadi et al. 2009; Brown and Dant 2008a,b; Grewal and Levy 2007, 2009), as well as from means of leverage across channels (Achabal, Chu, and Kalyanam 2005; Neslin et al. 2006; Neslin and Shankar 2009) and the specific pricing arena (e.g., Kopalle et al. 2009; Ratchford 2009). Drawing on such insights, we offer an organizing framework (see Fig. 1) that we propose may guide further research into multichannel pricing strategies and issues.

Our review begins with a description of what we know about the development of appropriate price and promotion strategies; we summarize some representative articles in the Appendix. We also note some key lessons from behavioral research regarding promotional prices and their effects on perceptions of value and purchase intentions. We then introduce three key antecedents—firm factors, product (good/service) factors, and channel factors—that likely have important ramifications for developing a retail

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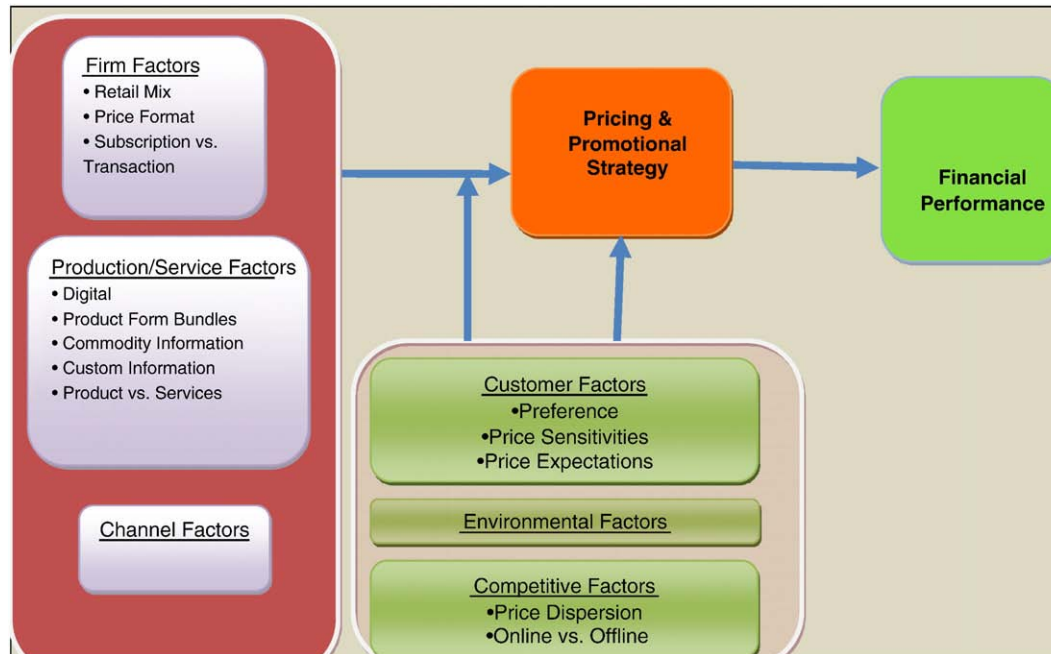


Fig. 1. Strategic pricing and promotional organizational framework.

pricing strategy. These antecedents should influence consumer reactions, which in turn affect pricing strategies. In addition, we posit that the effect of specific antecedents on pricing strategies may be moderated by customer, environmental, and competitive factors, which also might have direct effects on the retail pricing strategy and overall financial performance.

Recent research also suggests a need to move away from backward-looking, aggregate financial metrics (e.g., past store sales, profits) and toward forward-looking, customer-level financial metrics (e.g., customer lifetime value (CLV)) (Kumar, Shah, and Venkatesan 2006). As retailers integrate their online and offline pricing, forward-looking CLV metrics should become steadily more important as means to evaluate the effectiveness of pricing strategies for multichannel customers. A key to the development of effective strategies is the use of appropriate customer data and analytics (Verhoef et al. *this issue*). We develop and present various avenues for further research within in each domain or subdomain, and we summarize these findings in Table 1.

### Price and Price Promotions

Retailers must develop their pricing strategies carefully to ensure that their prices optimize their profits and convey their desired image. For example, a firm like Wal-Mart pursues a different image than does Neiman-Marcus and therefore promises the lowest prices on an everyday basis. In contrast, the upscale chain emphasizes its up-to-date fashions, designer labels, and superior service, without overemphasizing the promotional aspects of its prices. High-end chains still serve a promotional segment; however, their strategy must align with their specific pricing image.

Setting prices and developing a consistent strategy is much more complicated for a retailer than for a manufacturer because of the vast number of stock keeping units involved (Levy et al. 2004). Retail optimization software attempts to help retailers

strategically manage their prices to achieve and convey a certain image, as well as make appropriate tactical decisions (e.g., short-term promotions, bundled offers).

Marketing researchers also investigate various price- and promotion-related issues, mostly with regard to offline pricing (Bolton and Shankar 2003). The most common research area pertains to comparative price advertising (Compeau and Grewal 1998) and considers the effects of advertised reference prices, sale prices, and discount sizes on dependent variables such as internal reference prices, perceived value, and behavioral intentions (Compeau and Grewal 1998; Grewal, Monroe, and Krishnan 1998; Howard and Kerin 2006). Prior research suggests that the type of advertised reference price matters; regular advertised reference prices convey a sense of urgency and may be more effective in stores than are “compare at” prices (Grewal, Marmorstein, and Sharma 1996; Grewal, Lindsey-Mullikin, and Roggeveen 2009). The visual presentation of the price promotions similarly may influence consumer perceptions (e.g., Coulter and Coulter 2005, 2007; Chandrashekar et al., 2009; Lam, Chau, and Wong 2007; Suri, Chandrashekar, and Grewal 2009). For example, Chandrashekar et al. (2009) demonstrate that the color of the sale price (e.g., red or black) can engender different value perceptions for men than for women. If the color of the price attracts consumers to the deal, retailers should determine the most effective colors. If they consider gender differences, online retailers should customize the colors of the advertised prices accordingly.

### Future Research Issues

An important research avenue attempts to understand the customer experience or shopping process (e.g., Grewal, Levy, and Kumar 2009; Hanson and Kalyanam 2007; Puccinelli et al. 2009). Shoppers likely see advertised promotions of retailers in flyers or in-store displays, and then may visit the Web site to confirm or

Table 1  
Future Research Issues.

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Price and Price Promotion Strategies

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Do different sequences of shopping behavior influence shoppers in different ways? How and where is path dependence in the shopping sequence likely to matter?

–Shoppers likely see advertised promotions of retailers in flyers or in-store displays, and then may visit the Web site to confirm or investigate the products and prices. Other customers might start their price search on the Internet and then look at flyers or in-store displays

Will frequent changes of prices be still useful for consumers who already have reference prices?

*Key Antecedent: Firm Factors*

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|---|---|
| Retail Mix                                  | Does increasing variety in online environment confuse consumers? Do shopping agents mitigate such confusion effects?<br>–Online retailers can offer assortments that are both broader and deeper and thus escape the historic trade-off between breadth versus depth<br>Can online retailers moderate the negative effects of broader and deeper assortments with personalization and customization?<br>–There may be the performance gap between specialists who practice niche marketing and generalists who adopt mass marketing strategies  |
| Price Format                                | Should EDLP retailers also extend their EDLP strategy to the online setting? Should Hi-Lo retailers use the Internet to engage in more sophisticated price discrimination strategies?<br>–While EDLP retailers with a fundamentally low-cost orientation, Hi-Lo retailers rely on price discrimination  |
| Subscription Versus Transaction Orientation | Does increasing price competition on the Internet make subscription-based retailing models an attractive alternative to the outcome of a Bertrand competition?<br>–A subscription or membership fee represents a commitment mechanism, so once the retailer obtains the fee, consumers become residual claimants and must spend a minimum amount to “get their money’s worth”<br>Are subscription models motivated by strategic or cost-side considerations? Can the Internet improve subscription-based models?<br>–The use of Internet technologies can enable retailers to engage in continuous communications with the consumer and provide updates at very low costs |

*Key Antecedent: Product and Service Characteristics*

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|--------------------------------|---|
| Digital Products               | Can firms that sell digital products online communicate their value to customers better and thereby extract a viable price?<br>–Because the marginal cost of another digital product is close to zero, many consumers believe that a “fair price” is much lower than that for traditional versions of products<br>How can firms set optimal pricing strategies? Can firms’ price discriminate among customers and extract any surplus? How can they measure the willingness to pay of their customer base?<br>–Strategies such as versioning produce digital products with different quality tiers to take advantage of the variability in customers’ willingness to pay for digital products.<br>What is the impact of network effects on digital content pricing, specifically pertaining to the relationship among piracy, market penetration, network effects, and pricing?<br>–In competitive markets, content sellers can reduce price competition and increase profits by allowing price-sensitive consumers to benefit from piracy. With strong network effects, the strong enforcement of copyright protection laws helps reduce price competition |
| Product Form Bundles           | What are the conditions in which the different forms—unbundled or bundled content and bundled forms—might be perceived as complements or induce consumers’ higher willingness to pay for the content?<br>–Multiform products are becoming the norm in content marketing settings  |
| Commodity Information Products | Which pricing strategy firms should adopt under what conditions? Can a price-per-access strategy coexist with advertising-supported business models?  |
| Custom Information Products    | As personalization and customization become easier for product and service sellers, both online and offline, what impact do they have on pricing, especially for experiential goods and services?<br>How can firms and retailers price their products to minimize the risks to their reputation due to misuse of the product/service by customers?<br>How important is customer selection to ensure that the pricing strategy is successful?<br>Is there an optimal level of personalization and customization that will help the pricing strategy maximize profits?  |
| Products or Services?          | As the distinction between products and services becomes increasingly blurry, what pricing strategies should a firm follow—subscription or individual unit? What effects do these trends have ultimately on profitability?<br>What are the implications of alternative pricing formats on customer selection and customer retention?  |

*Key Antecedent: Channel Characteristics*

How do consumers compare online and offline prices? How do they weigh shipping costs or the cost of traveling to the store? What are their perceptions of relative prices in the two channels?

What is the impact of this recent change on the use of the Internet such as wireless Internet on consumer price sensitivity?

–The advent of wireless Internet access has made online information much more portable, so it is feasible to compare information found at a store with information located online

When and in what circumstances can products with non-digital attributes be sold online and at what prices?

–Consumers might be willing to incur the cost of traveling to a store and possibly pay a higher price for items with non-digital attributes

*Moderating Role of Consumer Characteristics and Heterogeneity*

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|----------------------|--|
| Consumer Preferences | How to properly measure consumer heterogeneity in preferences along with the market size in online environment to set an optimal price?<br>–If consumer heterogeneity on the various dimensions can be measured successfully, the pricing problem becomes a straightforward optimization problem |
| Price Sensitivities  | What is the impact of guarantee schemes such as price-matching, money-back, and low-price guarantees on retail pricing strategies?   |
| Price Expectations   | What is the interplay among the shopping environment, pricing practices (offline and online), consumer characteristics (i.e., purchase frequency, price sensitivities), and price expectations?  |
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Table 1 (continued)

## Price and Price Promotion Strategies

*Moderating Role of Macroeconomic/Regulatory Factors*

Does the price dispersion between offline and online media decrease or increase during economic recessions?

As channel cost structures change during economic downturns, which channel is more profitable in these settings? What strategies should firms coordinate across their online and offline channels to obtain greater shares of customers' wallet and increase short-term sales?

Do policies that regulate online and offline prices influence consumer welfare? How do such regulations affect firms' performance?

Does the price elasticity of consumer demand in online and offline media vary in different economic settings?

–The lower search costs online might suggest that consumers would prefer online to offline channels during economic recessions.

*Moderating Role of Competitive Effects*

Price Dispersion	How can we combine horizontal and vertical differentiation decisions into an integrated model of pricing and price dispersion?
	What is the relative importance of antecedents of price dispersion—heterogeneous search costs or demands, the number of firms in the market, product differentiation, and switching costs, etc.—in real markets?
	How can we collect actual transaction data and verify findings from research on price dispersion that employed posted prices?
	–The lack of sales and transaction data requires most studies of online price dispersion to employ posted prices without regard to whether a significant number of transactions take place at those prices
	How can we develop reliable and valid measures of retail services and transaction frequency to augment existing price data?
Online Competition with Offline Outlets	–Studies of retail pricing, in both online and offline markets, are impeded by the difficulty of defining appropriate operational measures of retail services
	How or why do consumers choose one channel over another for their transactions? How do consumers perceive service differences between the channels? How do such variables affect prices? What are substitution patterns between online and offline outlets or the elasticities or cross-elasticities of demand?
	How and why does the mix of online and offline sellers differ in various retail markets?

investigate the products and prices. Other customers might start their price search on the Internet and then look at flyers or in-store displays. Do these different sequences of shopping behavior influence shoppers in different ways? How and where is path dependence in the shopping sequence likely to matter? For example, time-sensitive consumers probably are more influenced by Internet specials; research should confirm and explicate this assumption.

The online environment provides online retailers with another advantage: they can identify the elements of their price promotions that consumers click on, as well as recognize their search process. For example, did the consumer click on a free shipping offer, expedited delivery or the price discount? Researchers also could develop experimental Web sites to track response times specifically and thereby gain additional insights into the depth and breadth of consumers' searches. Consumer responses to frequently changing prices or dynamic prices offer another interesting topic for research. Will it still be useful for consumers who already have reference prices, for example?

**Key Antecedent: Firm Factors***Retail Mix*

A key antecedent, entails the retail mix chosen by the firm (Levy and Weitz 2007). Traditional retailer formats have depended on the breadth and depth of the assortment, such that department stores offered broad assortments in many categories but not much depth in any one category, whereas specialty retailers (e.g., The Gap) have focused on a narrow category of products with a deep selection. In addition, retail formats differ according to their approach to pricing.

Retailers can use specific combinations of information, price, assortment, convenience, and entertainment levels to differentiate themselves. When the levels of the retail mix elements combine in a

particular form, they constitute a retail format (Bhatnagar and Ratchford 2004; Hanson and Kalyanam 2007). For example, mid-range, mall-based department stores such as Macy's offer shoppers a broad assortment across multiple categories, little depth in any one category, a high level of in-store help, moderate pricing, a low level of convenience (because of their mall-based locations), and a high level of entertainment. Mall-based specialty apparel stores such as The Gap instead offer narrow breadth (few categories) with a deep selection of those items and lower prices. Thus, the difference between department stores and specialty formats primarily results from the distinction in the breadth and depth of merchandise.

*Future Research Issues*

Unlike brick-and-mortar retailers that are limited by the size of their physical stores, online retailers can offer assortments that are both broader and deeper and thus escape the historic trade-off between breadth versus depth. The strategies of online retailers such as Amazon.com and Overstock.com seem to follow this approach of ever-increasing breadth and depth, which then raises some fundamental research questions. On the one hand, considerable research indicates that increasing variety confuses consumers (Schwartz 2005). On the other hand, online retailers might be able to mitigate such confusion effects by providing shoppers with shopping agents (Häubl and Trifts 2000), such that the size of consumers' consideration sets might increase (Court et al. 2009).

Another important theoretical question relates to the performance of specialists versus generalists. Organizational ecologists (Carroll 1985) highlight baseline differences in performance between these two organizational forms and the conditions that can mitigate this difference. In marketing, the parallel conceptualization refers to the performances of mass versus niche market strategies (Kahn, Kalwani, and Morrison 1988; Tedlow 1990). The ability of online retailers to moderate the negative effects of broader and deeper assortments with personalization and customization might



narrow the performance gap between specialists who practice niche marketing and generalists who adopt mass marketing strategies.

### Price Format

When retailers differentiate with respect to their price format, they often adopt one of two modes, namely, everyday low pricing (EDLP) or Hi-Lo pricing (Bell and Lattin 1998; Hoch, Drèze, and Purk 1994; Singh, Hansen, and Blattberg 2006). Wal-Mart is perhaps the best known EDLP retailer; other examples include The Home Depot, Trader Joe's, and the German retailer ALDI.

Whereas EDLP retailers promote less frequently, Hi-Lo retailers do so often. For example, Wal-Mart sends 13 flyers in each calendar year, whereas Target, a Hi-Lo competitor, sends one every week (Ghemawat, Bradley, and Mark 2003). According to research that investigates household-level shopping data (Bell and Lattin 1998; Singh, Hansen, and Blattberg 2006), large basket shoppers prefer the EDLP format and are less sensitive to item prices than to basket prices, whereas Hi-Lo shoppers attend to item prices. Furthermore, the EDLP shopper appears more time sensitive, with higher search costs and value-consistent pricing perceptions.

In this sense, EDLP may represent more than a pricing strategy; it may be a retail market strategy. According to Hoch, Drèze and Purk (1994), if category-level EDLP is not accompanied by an appropriate positioning or advertising strategy, the retailer cannot generate noticeable demand-side responses. Similarly, Lal and Rao (1997) show that in equilibrium, an EDLP retailer competes on price as well as on better service.

In such studies, the cost-side differences between EDLP and Hi-Lo often get ignored. In particular, Hi-Lo involves significant costs, including advertising, in-store labor, inventory buildups, and supply chain disruptions and distortions, which might be hidden by weak IT systems and hence less appreciated. But whereas Kmart's advertising circular costs as a percentage of sales were 10.6% in one fiscal year, Wal-Mart's were only .4% (Merrick 2002). It appears that the exemplary EDLP retailers, like Wal-Mart, have fine-tuned their systems over years of trial and error to achieve a low-cost structure.<sup>1</sup> Yet it remains difficult to copy Wal-Mart's approach, because it does so many little things quite well (Ghemawat, Bradley, and Mark 2003). As a consequence, Wal-Mart's entry into a marketplace can have considerable impact on the marketplace, competitors and their pricing and promotional strategies (see recent articles: Ailawadi et al. (forthcoming); Baskers (2007); Gielens et al. (2008); Jia (2008)). A retailer's price format should strongly influence how it integrates its offline pricing with its online pricing. For example, Porter (1998) suggests deemphasizing those activities that are not consistent with an existing activity system in an enterprise. Therefore, online pricing should adopt an approach that is consistent with existing activity in the offline system. Hanson and Kalyanam (2007) provide a useful organizing framework for integrating existing and new channels that suggests extending a current approach online or taking advantage of new capabilities to execute a current approach better.

For example, Wal-Mart.com should reflect Wal-Mart's EDLP approach consistently and adhere to the same promotional frequency as the brick-and-mortar stores rather than engage in any pricing approach, whether off- or online, that is inconsistent with its EDLP system. Wal-Mart's existing supply chain is designed for consistent demand, not to build inventory for promotion-induced, volatile spikes in demand. To complement and extend its existing EDLP model, Wal-Mart might use the Internet as a cost-effective information channel. It famously highlights its "rollbacks" in its stores; it could easily and inexpensively communicate them in e-mails to customers or on its Web site to encourage consumers to visit the store.

In contrast, Wal-Mart's low-cost model implies a "no frills" store environment, best suited to selling basic merchandise and reinforcing low-price cues, rather than selling fashionable items. Thus, Wal-Mart could use its online store to expand to a new range of merchandise, such as home furnishings or fashion apparel, which are less well suited to the store atmosphere. Such an expansion might help the retailer target additional price points and different consumers.

Hi-Lo pricing embraces the idea of price discrimination across different types of shoppers within the same format. However, an inability to customize promotions to individual households has limited the extent to which they can price discriminate. A Hi-Lo retailer's promotions strategies online could be even more sophisticated, employing deals to target those shoppers who search extensively for the best prices or who can easily shift their purchases. Instead of a single price instrument, the retailer could use two price schedules, online and offline. In addition, many Hi-Lo retailers have expanded their discount portfolios to include infrequent but deep discounts together with more frequent but shallower discounts (Alba et al. 1999). Retailers tend to limit the frequency of deep discounts because in their in-store environment, such approaches may erode profits and contradict the store image.

Online though, a Hi-Lo retailer can execute deep discounts in a targeted manner. Instead of putting deep discounts on its home page, it might move those items to a discount channel that is known to attract extremely price-sensitive shoppers. Priceline.com serves such a role in the travel industry, but because online search costs are so low, Priceline also masks the name of the provider and the exact product details (e.g., number of flight connections) until after purchase. Retailers similarly could avail themselves of various options and design their discount programs to send the deepest discounts to unique channels or customize them to the individuals. These capabilities might improve the cost effectiveness of Hi-Lo strategies and contribute to its resurgence.

Finally, many retailers use special in-store pricing to attract shoppers, which enables them to operate within the framework of the manufacturer's minimum advertised price policy (MAP). Many manufacturers impose MAP policies on any advertised prices (Charness and Chen 2002), but if the retailer does not advertise the specific price, it can sell below the manufacturer's MAP without breaking with the policy. In this context, the Internet poses a set of delicate challenges for both manufacturers and retailers because the price on a retail Web site might be

<sup>1</sup> Wal-Mart's selling general and administrative expenses as a percentage of sales (SGA%) have always fallen between 15% and 20%—some of the lowest levels in the industry (Hanson and Kalyanam 2007).

considered a posted or advertised price. However, the emerging practice of in-your-cart pricing may represent a means for retailers to work around this issue; with this approach, the actual price of the product is displayed only when the consumer places the product in his or her shopping cart and proceeds to checkout.

Retailers also may use category management (Dhar, Hoch, and Kumar 2001) to position their store and create the right image. Such categories also tend to drive store trips and store choice. To the extent that a retailer's customers use the Internet to obtain information about prices and dictate their store trips, pricing and marketing in these critical categories must be closely coordinated and integrated across on- and offline channels.

#### *Future Research Issues*

The discussion in this section suggests some strong predictions about the online pricing strategies of offline retailers. Specifically, EDLP retailers should be motivated by a desire not to engage in approaches that are inconsistent with their core EDLP activity system and instead extend their EDLP strategy to the online setting. Those with a fundamentally low-cost orientation also should leverage the Internet to enhance their low-cost structure further, perhaps by using e-mail and Web sites to achieve lower cost advertising. Hi-Lo retailers, in contrast, rely on price discrimination and therefore should use the Internet to engage in more sophisticated price discrimination strategies compared with those available in their brick-and-mortar stores contributing to a resurgence in profitable Hi-Lo pricing.

#### *Subscription Versus Transaction Orientation*

Some retail formats, such as Costco's, are based on subscriptions, such that customers must pay a membership fee to shop at the stores. Subscription-based formats have long existed (e.g., book, wine, or music clubs), but they have not gained a significant share of mainstream retailing. One study estimates that book clubs achieved only approximately 5% of the retail market in 2006 (Trachtenburg 2007), though retailers appear to be expanding their use of subscription-based strategies online. One of the most popular examples is Netflix, which rents DVDs using a subscription model; Amazon also has launched its subscription-based model called Prime that focuses on free shipping.

#### *Future Research Issues*

Subscription models raise some very interesting research questions. For example, it is not clear whether increasing price competition on the Internet makes subscription-based retailing models an attractive alternative to the outcome of a Bertrand competition. A subscription or membership fee represents a commitment mechanism, so once the retailer obtains the fee, consumers become residual claimants and must spend a minimum amount to "get their money's worth." The subscription model also might be regarded as a quantity discount or loyalty reward model, though it reverses the model: a discount model mandates that the consumer perform the purchase and the reward occur simultaneously whereas a subscription model requires the consumer to post a "bond" and then perform a desired action to recover that bond. Both approaches seem analogous, but different conditions

likely are conducive to one model versus the other, which requires further investigation. Subscription-based models also might improve through the use of Internet technologies, which enable retailers to engage in continuous communications with the consumer and provide updates at very low costs. Researchers should address the extent to which subscription models might be motivated by strategic versus cost-side considerations. The role of technology (another firm factor) is discussed in considerable detail by Varadarajan et al. (this issue) and as it pertains to mobile marketing by Shankar et al. (this issue).

#### **Key Antecedent: Role of Product (Good Versus Service) Factors**

##### *Digital Products*

Product and service categories that are informational and digital in nature, including creative content (e.g., books, music, videos), newspapers and software, and travel, hospitality, entertainment, and consulting services, play key roles online. Online channels have changed the form of products and their delivery, just as CDs have been replaced by MP3 or iTunes downloads, DVDs by streaming video, and books by e-books. In turn, the basis for pricing such products must differ. Most firms initially could not price digital forms appropriately; though digital piracy certainly contributes to such problems, they mainly result from consumers' expectations about the prices of digital products online. Because the marginal cost of another digital product is close to zero, many consumers believe that a "fair price" is much lower than that for traditional versions of products (Xia, Monroe, and Cox 2004). Thus, online newspapers generally do not charge for their content (cf. *The Wall Street Journal*) and instead rely on advertising revenue.

##### *Future Research Issues*

Can firms that sell digital products online communicate their value to customers better and thereby extract a viable, higher price? Can these firms price discriminate among customers and extract any surplus? Strategies such as versioning (Pauwels and Weiss 2008; Shapiro and Varian 1998) produce digital products with different quality tiers to take advantage of the variability in customers' willingness to pay for digital products. So how can firms measure the willingness to pay of their customer base? How can they set optimal pricing strategies? Marketers of creative content ask such questions in particular because their fixed costs are very high compared with their marginal costs, and the likelihood of recouping these high fixed costs depends on the price and market penetration of products.

Pricing also might affect online piracy. For example, retailers could give away a low-quality version for free; a firm with monopoly content also might price its single product to increase market penetration and reduce the incentive to pirate. In competitive markets, as Jain (2008) shows, content sellers can reduce price competition and increase profits by allowing price-sensitive consumers to benefit from piracy. With strong network effects, the strong enforcement of copyright protection laws helps reduce price competition. However, we still need to understand the

impact of network effects on digital content pricing, specifically pertaining to the relationship among piracy, market penetration, network effects, and pricing, as well as how firms should price their digital products to maximize profits. This issue is becoming much more relevant as digital content, such as television shows, appears on iPods, mobile devices, and online channels. Creative measures of network effects and market penetration could empirically tackle such pricing problems.

#### *Product Form Bundles*

Different emerging digital forms of information products and services also provide an opportunity for bundling with traditional forms. For example, the print edition of *The Wall Street Journal* provides the benefits of a traditional newspaper, whereas the online form enables quicker searches. Similarly, Blu-Ray DVDs show movies in sharp detail on big-screen televisions, but “.mpeg” or “.avi” files fit the lower resolution and size requirements of mobile devices, so Amazon might sell a bundled version of several forms of the same movie. However, consumers tend to be heterogeneous in their perceptions of whether forms are perfect or imperfect substitutes, or even complements. For example, Kannan, Pope, and Jain (2009), studying print and PDF books, reveal significant consumer heterogeneity, such that a product line that consists of print, PDF, and their bundle can be priced optimally, according to the customer preference estimates derived from online field experiments. Venkatesh and Chatterjee (2006) also show that unbundling content in the electronic form and rebundling with print forms increases firm profits significantly.

In addition, usage situations play important roles with regard to consumers' perceptions of substitutability or complementarity, which in turn affect their willingness to pay for a bundle. To investigate whether increased awareness of the advantages of different forms in varying usage situations affects demand for the bundle, Koukova, Kannan, and Ratchford (2008) study book and newspaper subscriptions and find that their usage situation manipulation significantly increases purchase intentions, as long as the bundle is discounted. However, communicating about the different usage situations and pricing the two forms differentially is just as effective as bundle discounts. It appears that understanding consumers' reference prices for different forms of the same item can help derive the optimal relative prices (Yadav 1994). Similarly, firms should design each form with regard to its relative attribute qualities, to ensure they are perceived as complements and thus increase customers' willingness to pay for the bundles.

#### *Future Research Issues*

As multiform products are becoming the norm in content marketing settings, it is necessary to understand the conditions in which the different forms—unbundled or bundled content and bundled forms—might be perceived as complements or induce consumers' higher willingness to pay for the content. This question is particularly important for producers and retailers of creative content such as music and videos, for whom new product forms erode margins and substitute for more traditional, more profitable forms.

#### *Commodity Information Products*

Consumers may have specific preferences for pieces of information, such as text or video clips contained in online databases, but the distribution of their preferences for different pieces of information is quite flat. Because of the large quantity of information and the size of the search space, pricing tends to refer to access rather than to an individual piece of information. Online servers thus must determine how to price access to commodity information products; many have charged users according to the length of time they remain connected to databases (or the size of the packets of information transferred), but hardware and software advances have provoked several changes, including search-based and/or subscription fee pricing. Jain and Kannan (2002) show that different pricing schemes may prove optimal for online servers because the variation in consumer expertise and their valuation of information affects their choice of pricing scheme. Given the various cost structures that characterize the market, undifferentiated online servers can compete and coexist, each earning positive profits with a different pricing strategy.

#### *Future Research Issues*

The issues of which pricing strategy to adopt in what conditions become even more critical as more online content becomes available. Content sites such as Hulu.com and Youtube.com even are contemplating unique business models that can monetize customers' visits. Additional research should investigate how a price-per-access strategy might coexist with advertising-supported business models.

#### *Custom Information Products*

Market research reports, analytics, and diagnostic reports also appear for sale online; they may represent experiential goods because consumers can measure their quality only after consumption, or even credence goods because some consumers might not be able to determine quality even after consumption. According to Kannan, Chang, and Whinston (1998) and Arora and Fosfuri (2005), the risks associated with such products for buyers include quality questions and seller reputations. For the seller, the risks pertain to the presence of noise because even a high-quality product may seem poor, despite sellers' best efforts and effective processes. Kannan, Chang, and Whinston (1998) also show that the price of custom information products increases with greater risk and suggest infomediaries might help monitor the market and reduce prices through overall risk reductions.

#### *Future Research Issues*

As personalization and customization become easier for product and service sellers, both online and offline, what impact do they have on pricing, especially for experiential goods and services? How can firms and retailers price their products to minimize the risks to their reputation due to misuse of the product/service by customers? How important is customer selection to ensure that the pricing strategy is successful? Is there an optimal level of personalization and customization that will help the pricing strategy maximize profits? These research questions will



become more important as marketers increasingly use customer information for their one-to-one marketing efforts.

#### *Products or Services?*

The nature of the offering (product or service) has an important influence on pricing strategy formats. As our discussion of information products highlights, some offerings appear as a product or a service and thereby affect pricing structures, such as individual unit pricing for a copy of the magazine versus a subscription for the magazine service, unit pricing for individual CDs versus a subscription pricing for a music service, or renting a DVD on the basis of unit pricing versus subscribing to a movie rental service from Netflix. In the realm of software products, the same trend appears; subscriptions to software services are replacing sales of individually shrink-wrapped units because these offerings appear more like a service rather than a product. According to research into the issue of subscription pricing versus pay-per-use in the service context (Danaher 2002; Essagaier, Gupta, and Zhang 2002; Jain and Kannan 2002), subscription pricing generally involves a fixed access charge per period and a usage fee every period that varies with the level of usage. Therefore, pricing depends on the usage levels of customers, their relative elasticities for access charges and usage charges, and customer retention/attrition rates. Such pricing strategies also are common in offline retail settings such as Costco and Sam's Club, which charge yearly subscriptions for access but sell the products they carry at deep discounts. The membership charges help them limit their customers to high-volume buyers (i.e., savings on items purchased must be high enough to offset yearly subscription charges), and the level of the access charge likely determines the effectiveness of the customer selection strategy.

#### *Future Research Issues*

As the distinction between products and services becomes increasingly blurry, what pricing strategies should a firm follow—subscription or individual unit? What are the implications for customer selection and customer retention of alternative pricing formats, and then what effects do these trends have ultimately on profitability? Menu pricing approaches might even include both options, with considerable competitive implications. If a retailer adopts a particular pricing strategy, competitors might perceive an incentive to follow suit, or they could purposefully pursue a completely different strategy. The market conditions likely dictate which strategies will be optimal for each firm. These interesting issues should become increasingly important as products morph ever further into services.

#### **Key Antecedent: Role of Channel Factors**

To evaluate how consumers employ online and offline channels as sources of information and to make transactions, it is useful to think of consumers as actors who seek to minimize the full price of transactions, which includes the selling price, transaction costs, shipping and handling costs, search costs, waiting costs, and risk costs. Online transactions minimize travel

costs, but offline transactions reduce waiting costs. Offline transactions may also be less risky because they offer face-to-face access if there is a problem. Thus, sellers that employ both channels may be able to combine their advantages. However, in other contexts, online-only transactions likely are advantageous, such as when the market is geographically widespread and offline sellers find it cost ineffective to maintain large inventories.

In comparing online and offline media as sources of information, a useful distinction appears in the framework provided by Lal and Sarvary (1999), who differentiate between digital attributes, which can readily be communicated on the Web, and non-digital attributes, which require physical inspection. Although the Internet can better communicate attributes than can videos and other devices, physical inspection remains the best way to determine the appeal of non-digital attributes. Assuming access is easy, the Internet provides an advantage in terms of conveying information about digital attributes, especially through search engines, which significantly lessen the costs of comparing across stores. The ability to search actively through large amounts of information with the aid of a search engine also gives the Internet an advantage over offline media, such as newspapers, as an information source.

If the Internet lowers search costs and improves consumer information about digital attributes, competition may increase, which should reduce prices. Strong evidence indicates that consumers use the information they gather online to pursue lower prices, which means markets are more competitive. Using micro-level data about the transaction prices for term insurance, Brown and Goolsbee (2002) determine that the Internet lowered term insurance prices by 8–15% during 1995–1997. Zettelmeyer, Morton and Silva-Risso (2006) show that access to price data and referrals through the Internet lower auto transaction prices by approximately 1.5%, though the benefits of the Internet accrue mainly to those who dislike bargaining. Improved online information also may produce better matches with consumer preferences, such that sellers can command a higher price (Anderson and Renault 2000). More accessible quality information decreases price sensitivity in wine purchasing, for example (Lynch and Ariely 2000).

In addition to influencing prices, the Internet may affect other search aspects. Because it allows consumers to search more efficiently, the Internet may increase search and alter the allocation of effort across information sources. Ratchford, Talukdar, and Lee (2007) provide evidence that online search significantly reduces time spent at automobile dealers. Yet despite these advantages, consumers do not search as extensively online as they might if their search costs were zero. The average household visits only 1.2 book sites, 1.3 CD sites, and 1.8 travel sites in a month (Johnson et al. 2004), which suggests very limited online search for most consumers. Moreover, Johnson, Bellman, and Lohse (2003) reveal substantial time costs involved in learning how to use specific Web sites.

#### *Future Research Issues*

Several issues related to online and offline transactions also demand further attention. Items sold online and offline can be substitutes, and online prices tend to be lower, yet we know



little about how consumers compare online and offline prices. For example, how do they weigh shipping costs or the cost of traveling to the store? We also do not understand their perceptions of relative prices in the two channels or the extent to which these perceptions drive their purchase behavior.

Until recently, the difficulty of accessing the Internet made it challenging to gain online information during trips to offline retailers. However, the advent of wireless Internet access has made online information much more portable, so it is feasible to compare information found at a store with information located online. Researchers should investigate the impact of this recent change on the use of the Internet for and on consumer price sensitivity.

Finally, consumers might be willing to incur the cost of traveling to a store and possibly pay a higher price for items with non-digital attributes (e.g., cosmetics). So, when and in what circumstances can such products be sold online and at what prices? Lal and Sarvary (1999) argue that for repeat purchases of items with non-digital attributes, online retailers can set prices that incorporate the travel cost savings. But consumers only know the offline price of the item, so this approach may be problematic, in that it demands coordinated prices online and offline. In summary, we need more research into the pricing implications of online versus offline sales of items that have important non-digital attributes, especially those that consumers are willing to buy online after they have made an initial inspection.

### **Moderating Role of Consumer Characteristics and Heterogeneity**

Consumers' willingness to pay for goods and services online is a function of their search, convenience, risk, and market access costs, all of which vary across consumers. In addition, the specific choice of products depends on consumer preferences, price sensitivities, and price expectations.

#### *Consumer Preferences*

Extant work in offline retail pricing (e.g., Levy et al. 2004; Shankar and Bolton 2004; Shankar and Krishnamurthi 1996) often focuses on how retailers set price policies in response to these dimensions and their variations across consumers. For example, Kannan, Pope, and Jain (2009) show that measuring consumer' online preference heterogeneity and their heterogeneity in perceptions of products as substitutes or complements, enable retailers to set optimal prices.

#### *Future Research Issues*

If consumer heterogeneity on the various dimensions can be measured successfully, the pricing problem becomes a straightforward optimization problem. However, appropriate online measurement schemes that can estimate consumer heterogeneity in preferences and other dimensions, along with the market size, remain a key challenge. Research devoted to this topic could benefit practitioners in their efforts to set prices. Other potential measurement dimensions include variation in consumers' preferences for services when they purchase products online and its impact on their willingness to pay, lock-in, and loyalty behavior.

#### *Price Sensitivities*

Kocas and Bohlmann (2008) show that in the presence of multiple switcher segments (i.e., consumers who compare prices at different retailers), retailer-specific loyalty alone cannot explain varied price strategies across retailers, even in undifferentiated, homogeneous goods markets. Rather, the retailer's discount strategy appears driven by the ratio of the size of the switcher segments to the size of its loyal segment. Chen, Narasimhan, and Zhang (2001) also note that, contrary to the conventional wisdom that price-matching guarantees cause price collusion and higher prices, prices and profits often are strictly lower when all retailers adopt such guarantees, which means they facilitate competition. McWilliams and Gerstner (2006) also find that low-price guarantees, added to a money-back guarantee offer, improve economic efficiency by reducing both retailer loss and customer hassle costs due to excessive returns, rather than leading to higher prices.

#### *Future Research Issues*

An empirical examination of the impact of these guarantee schemes (i.e., price-matching, money-back, and low-price) on online prices would provide further insights, such as the impact of guarantees on retail pricing strategies and market shares when just a few retailers choose to use them. Another key issue for the online channel is the way it provides opportunities for retailers to estimate customer heterogeneity and reservation prices through focused data collection about individual customer purchase histories, click-streams of online behavior, focused surveys, and experiments. Prior research notes issues such as dynamic targeted pricing (e.g., Kannan and Kopalle 2001), customized pricing, individualized pricing, and so on, which attempt to achieve something close to first-degree price discrimination. Significant research also examines whether the practice of dynamic and customized pricing, based on customer history, benefits retailers.

Just as retailers can use purchase history to learn about consumers, consumers can learn from retailer actions and act "strategically" themselves. For example, Villas-Boas (2004) and Acquisti and Varian (2005) show that monopolist firms can be worse off if they target customers based on history when those customers are strategic. However, dynamic targeted pricing may benefit competing firms (Chen and Zhang 2009) because to enable customer price sensitivity estimations, competing firms must price high to screen out price-sensitive customers. Lower price competition and higher overall profits for firms result. Chen and Iyer (2002) also focus on the recognition of customers and show that even when data collection is costless, competitive firms should not pursue it to the extent that it creates destructive price competition. Finally, Liu and Zhang (2006) explore targeted pricing in a channel context and find that it might be optimal for retailers to use a deterrent to prevent manufacturers from selling directly to end customers. Empirical studies of online retail markets in different product/service categories, along the lines of Kocas and Bohlmann (2008), could help verify these findings and implications.

### Price Expectations

The last dimension of consumer heterogeneity we discuss in this section pertains to price expectations (Kalwani et al. 1990; Kopalle and Lindsey-Mullikin 2003). Extant research (Kalyanaram and Winer 1995) shows that reference prices derive from the frequency with which consumers search and shop for products and services, how standardized those products/services are, and the level of involvement with the product or service. To the extent that a consumer's offline and online shopping behavior vary, they also might have an impact on reference prices. Also, if price is a more salient attribute, consumers likely display better recall of prices that they encounter offline or online (Mazumdar and Monroe 1990, 1992), which may increase their confidence in their own reference prices.

### Future Research Issues

If price-sensitive consumers shop online to find deals, online retailers should consider consumer price expectations in their strategies because a perception of loss on the price dimension might have a negative impact on purchase probabilities, whereas gain perceptions could lead to increased sales (e.g., Heilman, Nakamoto, and Rao 2002). The deals customers encounter in other categories (i.e., incidental prices) also likely have significant impacts on reference prices in the focal category (Nunes and Boatwright 2004). As multichannel purchasing becomes increasingly common, we note the pressing need to understand the interplay among the shopping environment, pricing practices (offline and online), consumer characteristics (i.e., purchase frequency, price sensitivities), and price expectations, especially for retailers that hope to develop robust pricing strategies online or in a multichannel context. Additionally, Dholokia et al. (this issue) outline numerous research issues as they pertain to consumer behavior in a multichannel environment.

### Moderating Role: Macroeconomic/Regulatory Factors

Generally speaking, macroeconomic developments have significant effects on firms' marketing strategies and help determine how consumers respond. Yet these factors are outside the control of any single firm. From a demand-side perspective, macroeconomic environmental factors, such as recession, unemployment, interest rates, access to credit, and declining stock market equity, continue to have powerful influences on consumers' buying behavior.

Uncertain economic times tend to make consumers more price sensitive. Suffering from economic downturns, consumers worry about what they buy, where they buy, and how much they will pay (Deleersnyder et al. 2004; Grewal, Levy, and Kumar 2009). However, the real impact of macroeconomic factors depends on the type of the products and services offered. For example, consumer durables are costly and account for a large share of consumers' disposable income (Li and Chang 2004), which make them more susceptible to business-cycle changes (Deleersnyder et al. 2004). During periods of economic contraction, consumers often shy away from costlier branded

products and favor less expensive, private-label products; the opposite trend may emerge during economic expansions (Lamey et al. 2007; Kalyanaram and Putler 1997). Grewal, Levy, and Kumar (2009) stress that during tighter economic times, customers cannot abandon purchases altogether, but they certainly are more careful of what they buy and search for additional value. In many cases, customers turn to mass merchandisers and pursue promoted items (Ma et al. 2009).

From a supply-side perspective, manufacturers often reduce their marketing expenditures during bad economic times, cutting costs and reallocating budgets in an effort to generate short-term sales or cash flow (Deleersnyder et al. 2004). As a result, some researchers argue that prices decrease (e.g., Tirole 2001), though others claim the opposite (e.g., Rotemberg and Saloner 1986). But the truth is that not all firms react in the same manner. Drawing on organizational theory, Srinivasan, Rangaswamy, and Lilien (2005) posit that some firms pursue proactive marketing and use recessions as opportunities to outperform their competitors. Their strategic market responses can help these firms in the long run, after the economy rebounds. The authors cite Chevrolet, which became a U.S. market leader because of its aggressive marketing campaigns during the Great Depression, and Renault, which introduced its Clio brand at the second highest price point in the category during the 1989–1990 recession. Various policies and laws also regulate both online and offline channel prices. For example, a Texas law mandates that when dealers advertise a price for a car online, they must offer it for the same price offline (Texas Motor Vehicle Board 2001).

### Future Research Issues

Despite evidence regarding the effects of macroeconomic factors on consumers' shopping behavior and firms' strategies, several questions related to online and offline pricing remain to be investigated: Does the price dispersion between offline and online media decrease or increase during economic recessions? As channel cost structures change during economic downturns, which channel is more profitable in these settings? What strategies should firms coordinate across their online and offline channels to obtain greater shares of customers' wallet and increase short-term sales? Do policies that regulate online and offline prices influence consumer welfare? How do such regulations affect firms' performance? An exploratory study of some of the novel pricing strategies (both offline and online) that firms undertake during times of recession would provide useful insights.

Recently Comscore reported increased searches for coupons and greater traffic at coupon sites (Fulgoni, 2009). The lower search costs online thus might suggest that consumers would prefer online to offline channels during economic recessions. The price elasticity of consumer demand in online and offline media similarly might vary in different economic settings. Addressing these points and exploring them longitudinally, before, during, and after economic downturns, would help retailers tackle the problems associated with a turbulent economic environment and manage their online and offline channel pricing strategies more effectively, regardless of the external conditions.

## Moderating Role: Competitive Effects

### Price Dispersion

Search costs and imperfect information are critical to both online and offline pricing decisions, and competitive pricing choices often depend on whether search is costly and/or products are differentiated. For example, when identical sellers provide a homogeneous good and some consumers have zero search costs, while others have positive search costs, the best solution employs mixed strategies, such that sellers alternate between the reservation price of consumers who do not search and a lower price geared toward attracting searchers (Stahl 1989; Varian 1980). The latter may include price promotions.

In general, mixed strategies create a distribution of prices that can be characterized by an average level and some degree of dispersion around that average. The equilibrium price distribution in a model with endogenous search moves from the Diamond (monopoly) result (Diamond 1971) to the Bertrand (competitive) result as the proportion of consumers with zero search costs moves from 0 to 1 (Stahl 1989). That is, price dispersion first increases and then decreases as the proportion of zero search cost consumers increases (Stahl 1989).

Depending on assumptions about entry, the mixed strategy model provides different predictions about the variation in prices with the number of competitors. According to Varian (1980), Stahl (1989), and Iyer and Pazgal (2003), prices generally increase as the number of competing stores increases because the chance of attracting zero search cost consumers declines with an increasing number of competing sellers. In applying a similar model to explain the prices posted by Internet shopping agents (ISAs) though, Baye and Morgan (2001) and Baye, Morgan, and Scholten (2004a) show that average prices decrease with the number of firms listed on the ISA if sellers pay an entrance fee and consumers can search without cost.

Although mixed strategies may provide a supply-side explanation for price dispersion, another possible explanation stems from the differences in firm costs. If consumers search for the lowest price of a homogeneous good and their search costs are uniformly distributed with a bound of zero, price dispersion occurs when sellers have different costs (Carlson and McAfee 1983).

These results all pertain to homogeneous products and all indicate that differences in the propensity to search create price dispersion. However, when consumers have different preferences and identical search costs, their desire to search for a best match can eliminate price dispersion (Anderson and Renault, 1999). Anderson and Renault (1999, 2000) determine two offsetting effects of product differentiation on prices: it lowers prices by inducing search, but it also tends to increase prices by inducing consumers to pay more for their favorite products.

In these models, sellers only set their prices; in reality, sellers also can benefit from actions that raise search costs or soften competition (Ellison and Ellison 2004). For example, many online sellers add shipping costs to their prices (Ellison and Ellison 2004) and then promise “free shipping.” To motivate sellers to demonstrate their products, manufacturers might help soften competition by creating separate versions of a product for

each retailer (Bergen, Dutta, and Shugan 1996). Another means to minimize competition is by creating switching costs, such as those associated with learning to use a new Web site (Farrell and Klemperer 2006; Johnson, Bellman, and Lohse 2003). Thus, online retailers have an incentive to set low initial (penetration) prices to induce customers to visit and become familiar with the site, which should produce a lock-in effect.

According to various applications of the theoretical models discussed in this section to the behavior of offline retailers (for a review, see Betancourt 2004), retailers commonly sell different variants of a manufacturer’s product to make comparisons more difficult for consumers (Bergen, Dutta, and Shugan 1996). Furthermore, Messinger and Narasimhan (1997) show that consumers trade margin for savings; for example, grocery consumers trade a 1–2% increase in store margins for the 3–4% decrease in shopping costs that results from larger supermarket assortments. Considerable evidence also confirms the vast dispersion in prices of physically identical items across sellers (e.g., Grewal and Marmorstein 1994; Pratt, Wise, and Zeckhauser 1979).

In an online context, despite the influence of price comparison sites, a persistent dispersion still marks the posted prices (e.g., Lindsey-Mullikin and Grewal 2006; Pan, Shankar, and Ratchford 2003; Ratchford 2009; Ratchford, Pan, and Shankar 2003). Pan, Ratchford, and Shankar (2009) suggest price dispersion is just as prevalent today as it was when the Internet was new. Iyer and Pazgal (2003) and Baye, Morgan, and Scholten (2004b) also find evidence of random fluctuations in the prices charged by online sellers, though similar evidence consistent with the concept of mixed pricing strategies has been nonexistent in some other settings (Ellison and Ellison 2005).

With regard to another question, namely, whether average prices and price dispersion vary with the number of competitors, the answer seems to depend on the category. The average online prices of books, music CDs, and movie videos appear to increase with the number of sellers (Iyer and Pazgal 2003), but the online prices of electronic products may decline with more competitors (Baye, Morgan, and Scholten 2004a). Consistent with their theoretical model, Baye, Morgan, and Scholten (2004a) find strong evidence that the gap between the lowest and second lowest price (their measure of dispersion) declines steeply as the number of sellers increases to approximately 10, and then levels off thereafter. Pan, Ratchford, and Shankar (2009) use the range and coefficient of variation in prices as measures of price dispersion but cannot confirm this pattern according to the number of sellers.

Despite theoretical expectations of a relation between online prices and online services, research does not provide clear evidence that it exists (e.g., Pan, Ratchford, and Shankar 2002a). This gap may suggest a failure to measure relevant services or other measurement errors, such as the use of posted prices without information about how many transactions take place at each price.

### Future Research Issues

Because they consider only fragments of the problems encountered in real markets, existing models of pricing and price dispersion are challenging to apply. More research should combine pricing and horizontal and vertical differentiation decisions into an integrated model. The models provide insights



into anticipated consumer behavior though. In particular, price dispersion may arise from heterogeneous search costs or demands; markets need not become more competitive as the number of firms increases; product differentiation both induces search and creates a higher valuation for the preferred item; firms have an incentive to make it harder to find the preferred item or lowest price; and switching costs may drive online sellers to engage in penetration pricing. However, we know little about the relative importance of these antecedents of price dispersion in real markets. Empirical research that documents the relative importance of each of these factors in creating price dispersion therefore would be welcome.

The lack of sales and transaction data requires most studies of online price dispersion to employ posted prices, without regard to whether a significant number of transactions takes place at those prices. Consequently, these studies could be providing misleading pictures of actual price dispersion and sales-weighted measures would be preferable. That is, researchers need to collect sales data as well as data on prices.

Studies of retail pricing, in both online and offline markets, similarly are impeded by the difficulty of defining appropriate operational measures of retail services. Studies of online prices and price dispersion on ISAs often treat homogeneous products as undifferentiated, even if consumers may view alternative retailers as unique in terms of their service attributes and risk (Smith and Brynjolfsson 2001). Kalyanam and McIntyre (1999) find that in auction markets, a seller with a higher feedback score can command a price premium, even when selling identical goods, which provides some empirical support for this argument. In general, researchers need to develop reliable and valid measures of retail services and transaction frequency, which may require survey data, such as the feedback scores for online transactions, to augment existing price data.

#### *Online Competition with Offline Outlets*

Online sellers offer a price advantage because consumers do not have to travel to a store; offline sellers have an advantage in making merchandise available for inspection and providing immediate delivery. Because of these differences, online and offline sellers inherently differ, though both sell physically identical products, and consumers appear to use both. Multichannel sellers offer the possibility of providing both sets of benefits to consumers (e.g., order online, pick up or return to the store), but they also need to coordinate their online and offline prices, promotional efforts, and other services (Neslin et al. 2006; Neslin and Shankar 2009).

Retailers that sell in both online and offline channels should recognize the effect of their online prices on their offline sales and vice versa. Consequently, multichannel sellers may be less aggressive in their online pricing than are their single-channel counterparts; empirical evidence confirms that they generally charge higher prices than online-only sellers (Ancarani and Shankar 2004; Cao and Gruca 2003; Pan, Shankar, and Ratchford 2002; Tang and Xing 2001; Xing, Yang, and Tang 2006). Evidence about whether price dispersion among multichannel sellers is lower than that for sellers that function

exclusively online is mixed though (Tang and Xing 2001; Xing, Yang, and Tang 2006).

Studies of competition between online and offline sellers are quite scarce, though Xing, Yang, and Tang (2006) provide a thorough comparison of prices and price dispersion between multichannel and online sellers in the DVD market for a year of data. Existing evidence generally indicates that online and offline sellers appear to serve as substitutes, at least for items such as computers, memory modules, and books (Ellison and Ellison 2006; Forman, Ghose, and Goldfarb 2007; Goolsbee 2001).

Even if multichannel sellers charge higher prices than online-only sellers, online prices tend to be lower than the prices of identical items sold offline (cf. Pan, Ratchford, and Shankar 2004). For example, Brynjolfsson and Smith (2000) and Garbarino (2006) show that online book and CD prices are lower than the offline prices of the same items, though the gap seems to have narrowed recently, perhaps due to lower online costs, poorer services, penetration pricing that locks in customers, or any combination thereof.

#### *Future Research Issues*

In the past decade, a large, dominant, online seller has emerged in many online markets, and most large offline retailers have instituted online sales as well. For example, the market for books contains one large online seller, Amazon, and two large offline retailers, Barnes & Noble and Borders, that also sell online. This trend in which the dominant online retailer emerges at the same time as major retailers move into the online channel suggests that online–offline competition has become sharp. Yet evidence about online–offline competition, as well as just online competition, remains fragmentary. We may know something about typical pricing patterns used by online, offline, and multichannel outlets, but we know little about how or why consumers choose one channel over another for their transactions, how they perceive service differences between the channels, or how such variables might affect prices. As a consequence, we cannot identify substitution patterns between online and offline outlets or the elasticities or cross-elasticities of demand. Moreover, little is known about how and why the mix of online and offline sellers differs in various retail markets. Understanding these issues would require data about consumer choices and search behavior, as well as retail sales and prices. As with retail pricing in general, it may be necessary to resort to survey data to clarify these issues.

#### **Conclusion**

With this article, we review certain key domains of offline pricing research and emerging online research in an effort to help retailers (and researchers) develop appropriate online/offline pricing and promotional strategies, as well as coordinate these strategies. We highlight key domains in our organizing framework, which are neither mutually exclusive nor comprehensive. However, we believe that this article should provide an important catalyst for further research into these critical pricing and promotional issues.



## Appendix 1. Representative Review Literature

Author(s) and Year	Setting	Dependent Variable	Main Independent Variable(s)	Findings
<i>Price and price promotion strategies</i>				
Coulter and Coulter (2007)	Online and offline	Value perception	High versus low right digit with the same left digit	When consumers view regular and sale prices with identical left digits, they perceive larger price discounts when the right digits are small (i.e., less than 5) than when they are large (i.e., greater than 5). As a result, they attribute greater value and increased purchase likelihood to higher priced, lower-discounted items.
Howard and Kerin (2006)	Offline	Price perception and shopping intentions	Reference price with limited-time availability and sale announcements	The use of sale announcements and limited-time availability in reference price advertisements has a favorable effect on price perceptions and store shopping intentions.
Shankar and Bolton (2004)	Offline	Pricing strategy	Competitor, category, chain, store, brand, customer factors	Competitor factors explain the most variance in retailer pricing strategy. Only in the cases of price promotion coordination and relative brand price do category and chain factors explain much variance in retailer pricing.
Suri, Swaminathan, and Monroe (2004)	Online and offline	Perception of quality, value, and monetary sacrifice	Medium and discount level of coupons, level of motivation to process information	The evaluation of coupons is a function of the interaction between consumers' motivation to process information and the type of medium—online versus print coupons—used to present the coupon.
Zhang and Wedel (2009)	Online and offline	Firm profit	Competitive versus loyalty promotions customized promotions at different level	Loyalty promotions which aim at consumers who purchased the target brand on the previous purchase occasion are more profitable in online stores than in offline stores, while the opposite holds for competitive promotions which aim at consumers who did not purchase the target brand on the previous purchase occasion.
<i>Key antecedent: firm factors</i>				
Bell and Lattin (1998)	Offline	Store choice and type of customers	Price format	Price expectations for the basket influence store choice. EDLP stores get a greater than expected share of business from large basket shoppers; Hi-Lo stores get a greater than expected share from small basket shoppers.
Dhar, Hoch, and Kumar (2001)	Offline	Category performance	Pricing, promotion, merchandizing	The best performing retailers offer broader assortments, have strong private label programs, charge significantly lower everyday prices, and use feature advertising to drive store traffic and display to increase in-store purchases.
Gauri, Trivedi, and Grewal (2008)	Offline	Pricing and format	Store, market, and competitive characteristics	Improved service features, higher income neighborhoods, populous neighborhoods, and distance to competition all are more associated with Hi-Lo than with EDLP pricing strategies. Improved service features, populous neighborhoods, and distance to competition also are associated with supermarkets rather than supercenters.
Kocas and Bohlmann (2008)	Online	Price discounts	Relative switcher-to-loyal ratios	A retailer's relative switcher-to-loyal ratio is a better indicator of the firm's price discounting strategy than loyalty alone.
<i>Key antecedent: product and service characteristics</i>				
Jain (2008)	Online	N/A	N/A	Under some conditions, copying can increase firms' profits, lead to better quality products, and increase social welfare because weaker copyright protection enables firms to reduce price competition by allowing price-sensitive consumers to copy.
Koukova, Kannan, and Ratchford (2008)	Online and offline	Purchase intention	Different usage situations of product forms	Increased awareness of advantages that different forms may have over one another in different usage situations significantly increases intent to purchase both print and electronic forms as long as the second item is discounted.
Lal and Sarvary (1999)	Online and offline	N/A	N/A	The introduction of the Internet may lead to monopoly pricing when the proportion of Internet users is high enough and when non-digital attributes are relevant but not overwhelming. Under these conditions, the use of the Internet not only leads to higher prices but can also discourage consumers from engaging in search.
<i>Key Antecedent: Product and Service Characteristics</i>				
Pan, Ratchford, and Shankar (2002)	Online	Price and price dispersion	Service quality	Online price dispersion is persistent, even after controlling for retailer heterogeneity. The proportion of the price dispersion explained by retailer characteristics is small.

(continued on next page)

## Appendix 1 (continued)

Author(s) and Year	Setting	Dependent Variable	Main Independent Variable(s)	Findings
<i>Key Antecedent: Channel Characteristics</i>				
Lynch and Ariely (2000)	Online	Price sensitivity	Price, quality, and store comparability	For differentiated products like wines, lowering the cost of search for quality information reduces price sensitivity. Price sensitivity for wines common to both stores increased when cross-store comparison was made easy.
Ratchford, Talukdar, and Lee (2007)	Online and offline	Time spent at the dealer	Internet use	The Internet substitutes for time spent at the dealer and time spent in negotiating prices. It also substitutes for print third-party sources.
Zettelmeyer, Morton, and Silva-Risso (2006)	Online	Price	Internet use	The Internet lowers prices because the Internet informs consumers about dealers' invoice prices and the referral process of online buying services helps consumers obtain lower prices. The benefits of gathering information differ by consumer type.
<i>Moderating Role of Consumer Characteristics and Heterogeneity</i>				
Chen, Narasimhan, and Zhang (2001)	Offline	N/A	N/A	With consumer composition of bargain shoppers and opportunistic loyals, price-matching guarantees spawn not only the widely recognized competition dampening effect whose existence hinges on bargain shoppers, but also the competition-enhancing effect arising from the existence of opportunistic loyals.
Grewal and Marmorstein (1994)	Offline	Willingness to search	Price level	The psychological utility that a consumer derives from saving a fixed amount of money is inversely related to the price of the item. Their motivation to spend time in price comparison for expensive items does not increase as much as expected.
Kalyanam and Putler (1997)	Offline	Brand choice	Demographic variables	A household's price sensitivity is inversely related to its income. Household size and seasonality make households more or less willing to buy larger package sizes. Households with lower incomes will have a higher propensity to purchase private labels and generic brands, and a lower propensity to purchase national brands.
Kannan, Pope, and Jain (2009)	Online	Profit	Pricing decision	Measuring consumers' online preference heterogeneity, as well as heterogeneity in their perceptions of products as substitutes or complements, enables retailers to set optimal prices.
Nunes and Boatwright (2004)	Offline	Willingness to pay	Incidental prices	Prices for products that buyers encounter unintentionally (incidental prices) can serve as anchors, thus affecting willingness to pay for the product that they intend to buy.
<i>Moderating Role of Macroeconomic/Regulatory Factors</i>				
Deleersnyder et al. (2004)	Offline	Sales of durable goods	Business cycle	Consumer durables are more sensitive to business-cycle fluctuations than the general economic activity. Companies' pricing practices amplify the cyclical sensitivity in durable sales, as companies tend to increase prices during an economic contraction, while decreasing them during an expansion.
Lamey et al. (2007)	Offline	Private-label share	Business cycle	A country's private label share increases when the economy is suffering and shrinks when the economy is flourishing. Consumers switch more extensively to store brands during bad economic times than they switch back to national brands in a recovery.
Srinivasan, Rangaswamy and Lilien (2005)	Offline	Proactive marketing response	Organizational and environmental contexts	Firms that have a strategic emphasis on marketing, an entrepreneurial culture, and slack resources are proactive in their marketing activities during a recession, while the severity of the recession in the industry negatively affects proactive marketing response.
<i>Moderating Role of Competitive Effects</i>				
Brynjolfsson and Smith (2000)	Online and offline	N/A	N/A	Prices on the Internet are 9–16% lower than prices in conventional outlets. Internet retailers' price adjustments over time are up to 100 times smaller than conventional retailers' price adjustments. While there is lower friction in Internet competition, branding, awareness, and trust remain important sources of heterogeneity.
Cao and Gruca (2003)	Online	Price	Retailer type and dot.com crash	During the run-up of Internet stocks, differences in switching costs, increasing returns to scale, and discount rates motivated pure etailers to build their customer base, whereas hybrid etailers leveraged their relationship with existing (offline) customers. As a result, pure etailers offered substantially lower prices than hybrid etailers.

## Appendix 1 (continued)

Author(s) and Year	Setting	Dependent Variable	Main Independent Variable(s)	Findings
<i>Moderating Role of Competitive Effects</i>				
Iyer and Pazgal (2003)	Online	N/A	N/A	Internet shopping agents (ISAs) create differentiation in pricing strategies between ex ante identical retailers. The equilibrium inside pricing is such that the average price can increase or decrease when more retailers join, depending on whether or not the number of consumers using the ISA is independent of the number of joining retailers.

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