

# Retail Pricing Strategy for Supply Chains: Literature Review and Research Opportunity

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## Abstract

Pricing strategy is a method for retailers to compete in the market. The success of the strategy implementation depends on several factors, such as customer behavior, market competition, and retailer formats. Suppliers' existence is also important to consider in assessing the effectiveness of the retail pricing strategy, mainly when the strategy is analyzed from a supply chain perspective. This paper provides a review of the retail pricing strategy for supply chain. The review is focused to three factors that are prominent to retail pricing. They are retail price promotion, retail format, and customer preference. The price promotion strategy is highlighted here because this approach is frequently applied than the other pricing strategies known in literature. The result of this study informs the existing literature about pricing strategy at the retailer level. This study also confirms that there is still limited work in retail pricing strategy, which implements the supply chain point of view.

## 1. Introduction

Pricing strategy has been considered as an effective way to achieve success for many retailers (Kardes *et al.* 2011). To determine a good pricing strategy, the retailer should understand customer characteristics and behavior. Berman *et al.* (2018) suggest that two factors influence customer shopping decisions. The first is the demographic factor, which includes, for example, gender, age, marriage status, and income. The second one is a lifestyle, which considers culture, social class, and time utilization.

However, a customer-based factor is not the only aspect to consider in determining the pricing strategy used. The market competition also impacts pricing as the competitors can influence the customer decision-making process. Moreover, the format of retailers can affect the inventory capacity of retailers, where the stock availability also influences the price determination process. In addition, when the issue viewed from a supply chain perspective, the competitive behavior of retailers in determining prices can affect the income of the suppliers. Therefore, it is reasonable to state that understanding retail pricing strategy requires a systematic approach.

Blattberg and Neslin as cited in Blattberg and Briesch (2012), stated that one of the pricing strategies used by retailers to attract customers is promotion. Sales promotion defined as an action-focused marketing event that aims to influence customer behavior directly. This approach is found to be adequate to compete with the competitors in the market (Huang *et al.* 2016). One form of promotion that is often applied in practice is a price reduction, where this strategy is also often the first choice of consumers in shopping (Smith and Sinha 2000; Das and Kumar 2009). Price reduction is also found to be able to increase retailer sales (McNeill 2012).

Several studies have been investigating the effect of promotion on retailers. However, some of these studies have different conclusions, such as Osborne (2018) and Arvitrida *et al.* (2019). Osborne (2018) shows that increasing the frequency of promotions does not have a significant impact on sales and revenue. In contrast, Arvitrida *et al.* (2019) find that retailers who offer low depth discounts with high frequencies obtain higher profits and sales compared to retailers who offer higher depth and lower frequency discounts. The difference in conclusions from previous studies implies that a structured study is required to understand this complex issue, where it can be started from a literature study.

This paper aims to provide an initial literature review of the pricing strategy at the retailer level. Narrative review is conducted in two steps to synthesize information on retailing pricing strategy literature. First, the literature is collected

from several reliable publishers (e.g. Elsevier, Taylor and Francis, IOP, and many others) based on some basic keywords, such as retailer competition, pricing strategy, customer preference, retailer format, retail supply chains, and price promotion strategy. A result of this step is that we limit the type of the retailers to be the stores that sell convenience products, such as toiletries and cosmetics. Even though no particular time duration is set during the literature collection, we prefer to use the more updated reference. The second step is organizing the literature based on the highlighted factors, which are retail price promotion, retail format, and customer preference. These factors are concluded according to the first step of literature review. This step intends to map any research opportunity exist. Also, we would like to investigate the extent of supply chain perspective used in analyzing retailer pricing strategy. Then, we consider supply chain aspect to organize the papers.

The contribution of this paper is two-fold. First, this research complements previous studies on the analysis of promotion strategies and pricing at retailers with different formats. This research also provides a more comprehensive perspective compared to previous studies, which involve the supply chain point of view.

The remaining of this paper is organized as follows. Section 2, 3 and 4 represents the resulting paper classification. Section 2 shows the literature on pricing strategy and price promotion as a competitive approach. Then, it is followed by section 3 and 4, which presents the previous work of pricing strategy that considers retail format and customer preference respectively. After that, section 5 discusses the gaps between these studies. Finally, the conclusion is presented in section 6.

## **2. Retailer pricing strategy and price promotion**

Competition is recognized as a significant variable that affects the retailer in deciding price. This primarily because the retailer is contending in an oligopoly market, where there is more than one player involved in the competition. Yang and Zhou (2006) studied the impact of duopolistic retailers' competitive behaviors: Cournot, Collusion, and Stackelberg. They analyzed the impact of each behavior on the optimum choices of the producer and the duopolistic retailers. Collusion behavior will give the retailer the highest profit because the retailer will determine the high selling price and buy a small number of goods. A Stackelberg oligopoly is a model in which one company acts as a leader, and the others are the followers.

The research results indicate that among the three scenarios, the duopolistic retailers' action in collusion makes the retailers charge the highest sale price. In contrast, the duopolistic retailers' Cournot behavior results in the lowest pricing of the retailers. Yang and Zhou (2006) also found that the more intense the duopolistic retail market contends; the higher the producer's and the duopolistic retailers' pricing should be. Furthermore, the total benefit of the duopolistic retailers who behave as the followers will surpass the more powerful manufacturer's interest if the level of distinction between the duopolistic retailers' market demands is large enough.

Wu *et al.* (2012) studied the pricing decisions in a non-cooperative supply chain that consists of two retailers and one typical supplier. The study explored certain formations that describe the exclusively horizontal competition between retailers and vertical competition between the supplier and the retailer. This study permitted vertical and horizontal competition to be modeled as either a Stackelberg or Bertrand game. Table 1 shows the summary of literature review on pricing strategy considering competition aspect in the discussion.

Retailers will reduce their prices when they compete. A price reduction is a common approach that aims to attract consumers. As a result, consumers will benefit from the competition (Huang *et al.* 2016; Yang and Zhou 2016). Retailers could reduce prices permanently or temporarily through sales promotion (Blattberg and Briesch 2012). Blattberg and Briesch (2012) classified types of promotion that commonly used by retailers, with one of them is a price reduction. Price reduction is a promotion strategy that is considered attractive by most consumers (Smith and Sinha 2000; Das and Kumar 2009) and could increase sales of retailers (McNeill 2012). There are two factors that need to be considered by retailers when applying price reduction, which is discount depth and frequency (Osborne 2018; Allender *et al.* 2012). Sivakumar (1996) developed a conceptual framework that indicates that different depth and frequency of price reduction could affect consumers' utility function to high-priced and low-priced brands. The summary of literature on pricing strategy with sales promotion variable is shown in Table 2.

Table 1. Literature review on pricing strategy with “competition” variable.

Author(s)	Dependent Variable	Independent Variable	Result
Shan-Lin Yang and Yong-Wu Zhou (Yang and Zhou 2006)	Retail price and profit	Competitive behavior: Cournot, Collusion, Stackelberg  Scenario: Similar and dissimilar demand	<ul style="list-style-type: none"> <li>• High retail price and high profit when retailer applies collusion behavior, low when retailer adopts Cournot behavior. Stackelberg behavior resulted in retail price and profit between the previous two practices in all scenarios</li> <li>• A retailer that acts as a leader in different demand scenarios will get a more considerable benefit if the demand is higher with small consumer price sensitivity.</li> </ul>
Yu-Chung Tsao (Tsao 2011)	Retail price and profit	Retailer competition, consumers price sensitivity	<ul style="list-style-type: none"> <li>• The more intense the competition between retailers, the higher retailer's price and profit</li> <li>• The more sensitive a consumer to price, the lower retailer's profit and price</li> </ul>
Cheng-Han Wu, Chieh-Wan Chen and Chung-Chi Hsieh (Wu <i>et al.</i> 2012)	Retail margin, profit, and order quantity	Horizontal and vertical competition in Bertrand and Stackelberg game	<ul style="list-style-type: none"> <li>• The retailer has the same margin, order quantity and profit in Bertrand game</li> <li>• Retailer as a leader has more considerable margin than a follower, smaller order quantity and profit than the follower</li> <li>• The supplier determines a high price as a leader and a low price as a follower.</li> </ul>
Hu Huang, Hua Ke and Lei Wang	Retail price, profit, margin, and order quantity	Retailer competition and cooperation, three power structure (retailer-dominant, supplier-dominant, non-dominant)	<ul style="list-style-type: none"> <li>• Retailers' prices will remain the same regardless of which party is dominant. However, the leader still determines suppliers' price or retailers' high margin to get high profit.</li> <li>• Retailers determine high margin and price, together with low order quantity if they are cooperative.</li> </ul>
Lei Xu, Xiaoran Shi, Peng Du, Kannan Govindan, and Zhenchao Zhang (Xu <i>et al.</i> 2019)	Retailer price and expected profit	Overconfidence level of a retailer, awareness to overconfidence retailer	<ul style="list-style-type: none"> <li>• The overconfident retailers will set a relatively high price compared to the benchmark model and will increase the price if the confidence level increase.</li> <li>• Rational retailers will increase the price following overconfident retailers. However, the price will still be lower than that of overconfident retailers. On the other hand, they will keep the price they do not have an awareness of the competitors' overconfidence.</li> </ul>

### 3. Retailer format and customer preference

Retail business has a various format which is determined based on the product type and the store size. In general, there are two types of the retailer based on the product: food retailer and general merchandise. Berman *et al.* (2018) classified food retailers into six types based on characteristics of store size, the number of cashiers, and product types. They are (1) convenience store, (2) conventional supermarket, (3) food-based superstore, (4) combination store, (5) limited-assortment store, and (6) warehouse store. While general merchandise categorized into a specialty store, traditional department store, full-line discount store, variety store, off-price chain, factory outlet, membership club, and flea market.

Table 2. Literature review on pricing strategy with “sales promotion” variable.

Author(s)	Dependent Variable	Independent Variable	Result
K. Sivakumar (Sivakumar 1996)	High price product, low price product	The discount depth and frequency	<ul style="list-style-type: none"> <li>High-priced brands product gains from a sporadic high discount depth</li> <li>On the other hand, low-priced brands gain more from a regular small discount depth</li> </ul>
Michael F. Smith and Indrajit Sinha (Smith and Sinha 2000)	Store preference	Price reduction, volume promotion (BOGO), the mix of price and volume	Price reduction and volume production will increase customers' preference to a particular shop
Gopal Das and Rohit Vishal Kumar (Das and Kumar 2010)	Customer buying behavior	Sales promotion	Limited sales promotion will affect buying behavior and must be supported by other factors so it can give a positive impact
William J. Allender and Timothy J. Richards (Allender and Richards 2012)	The discount depth and frequency	Brand loyalty	<ul style="list-style-type: none"> <li>Product with soft brand loyalty will have high discount depth depending on suppliers' price.</li> <li>Product with strong brand loyalty will be regularly promoted</li> </ul>
Lisa S. McNeill (McNeill 2012)	Price-based promotion, value-based promotion	Established market, developing market	The developing market prefers to use price-based promotion, while established market prefers value-based promotion
Yu-Chuang tsao and Gwo-Ji Sheen (Tsao and Sheen 2012)	Retailer promotional effort, supply chain coordination	Substitution rate, the sales learning curve	<ul style="list-style-type: none"> <li>Optimal promotion effort dependent on substitution level and will increase if the sales learning curve increases</li> <li>Room of negotiation for coordination will increase when the substitution level and sales learning curve increase</li> </ul>
Matthew Osborne (Osborne 2018)	Sales and revenue	The discount depth and frequency	<ul style="list-style-type: none"> <li>Sales and revenue will increase when discount depth set at a high level and decrease if discount depth set at a low level.</li> <li>The increase in discount frequency does not significantly impact sales and revenue. On the other hand, reduction on frequency will give a more significant negative impact compared to the increase</li> </ul>
Niniet I. Arvitrida, Adjai Candra, Nurhadi Siswanto and Lila Yuwana (Arvitrida <i>et al.</i> 2019)	Customer behavior	The discount depth and frequency	Consumers choose retailers that offer small and frequent discount depth rather than retailers that offer significant yet rare discount depth

However, retailer format can differ for a different country. The above formats commonly found in the United States or other European countries. Some of them are not available in other countries, such as Indonesia. Pandin (2009), classified retailers into three different formats in Indonesia. The classification is based on retailers' product type, product quantity, store space, and investment. The classes are minimarket, supermarket, and hypermarket. This classification aligned with Regulation of the president of the Republic of Indonesia number 112 of 2007 concerning organization and directions of traditional markets, shopping centers, and modern stores.

Minimarket is a type of retailer with a size maximum of 400m<sup>2</sup> and has total products of less than 5,000 units. A supermarket offers more various types of food, i.e., meat, agriculture products, dairy products, fresh food, and other products such as medicines and beauty products. Supermarket commonly requires initial investment approximately 200 million to 10 billion Indonesian Rupiah. On the other hand, a hypermarket is the largest retailer format in Indonesia that commonly owns a space size of more than 5,000m<sup>2</sup>. Hypermarket offers a huge variation of products (could be more than 25,000 units), i.e., foods, house ware, electronic products, clothes, and others.

Some research studied how the different retailer format sizes affect the discount depth and frequency used in sales promotion. Voss and Seiders (2003) studied the effect of store characteristics (store size and the number of stores) on retailers' decisions in choosing volume advertising and discount depth. Voss and Seiders conclude that a company with relatively big size and own numerous stores promote more frequently and maintain price stability by offering a small price discount.

This conclusion is supported by Haans and Gijsbrechts (2011) who state that consumers who visited big retailers do not pay attention to the promotion. Consumers spend their time to walk around and find the expected products. Therefore, considerable discount depth will not be sufficient. Furthermore, Haans and Gijsbrechts (2011) conclude that big retailers will experience loss more than smaller retailers if they offered high discount depth, which is self-funded. In contrast, a company with a relatively small size and a small number of stores tend not to advertise any promotion but giving a high discount depth to make varied prices (2003).

Koçaş and Bohlmann (2008) analyzed how retailers with different sizes are deciding on the discount depth and frequency if they encounter a switcher. A switcher is a consumer who has price information so they can compare product prices between retailers and choose the retailer that offers the lowest price. Big retailers will be advantageous if they offer big or small discount depth, dependent on available switcher consumers. They will also more frequently offer a promotion if more switchers exist in the market. This assumption contradicts that of Voss and Seiders (2003) that assume deeper discount is not beneficial for big retailers. Retailers will get more benefit if they offer a combination of frequent shallow promotion to compete with big retailers and occasional deep promotion to compete with smaller retailers. This situation principally because the retailer must compete with two different size retailers that have different promotion strategies. It is more reasonable for a small retailer not to utilize any promotion when the other two more prominent retailers have been competing to attract the switchers. The big and medium-sized retailers have no difficulty to offer much lower price promotion rather than a small retailer.

This result contradicts the conclusion of the previous two studies. Voss and Seiders (2003) state that big retailers will get more benefit if they offer low discount depth, while small retailers will get more benefit if they offer high discount depth. This statement supported by Haans and Gijsbrechts (2011). On the other hand, Koçaş and Bohlmann (2008) conclude that either low or high level of discount depth could benefit big retailers, depending on the existing switchers that they have. Small retailers will get more benefit if they do not offer promotions in order to avoid price competition. This assumption support an essential conclusion that consumers' behavior in shopping is a significant factor for different-sized retailers to decide their promotion strategy.

Various factors are affecting a consumers' decision to make a purchase. Berman et al. (2018) explain the two factors which affect consumers' decision in making a purchase: demographic (i.e., gender, age, marital status, income) and lifestyle (i.e., culture, social class, and time utilization). Both factors also affect consumers' preferences in shopping (2016). Consumers' decisions for shopping generated after going through six steps: stimulus, problem awareness, information search, evaluation of alternatives, purchase, and post-purchase behavior. Some researchers consider stimulus such as promotion to understand customers' behavior in shopping (Smith and Sinha 2000; Das and Kumar 2009; Arvitrida *et al.* 2019).

Problem awareness is also commonly investigated by researchers, such as Blattberg and Briesch (2012), Zentes *et al.* (2017), and Osborne (2018). Evaluation of alternatives has also been part of many researchers, such as Koçaş and Bohlmann (2008), He, Wang, and Cheng (2013), and He *et al.* (2014). They consider price information owned by consumers in regard to retailer's competition. The more information on price owned by consumers, then the retailer's competition will be more intense. The purchase stage is generally represented in the utility function, as examined by Blattberg and Briesch (2012), Dogan and Güner (2013), Gróf and Tóth (2014), Ge *et al.* (2018) and Xie and Chen (2004).

#### **4. Analysis and Discussion**

There are several factors affecting retailers' prices based on previous research: competition, consumer, sales promotion, and retailer format. Some researchers only consider individual factors, but some others have already considered multiple factors in a research framework. Nevertheless, as per current, there has not been particular research that considers competition, consumer behavior, sales promotion, and retailer capacity as a cohesive analysis

in pricing strategy approach. Besides these factors, there is also a lack of work that considers suppliers' perspective and accomplishing level in the market in an integrated model.

In general, competition has become a dominant factor that is considered in many pieces of research related to retailers' pricing strategy up to the present. This is mainly driven by the fact that retailing is closely related to competition, and the competition itself becoming the primary driver of pricing strategy. Consumer behavior has also become a factor that frequently studied in determining retailers' prices. Some previous research has considered sales promotion together with competition and customer behavior. On the other hand, few researchers have involved retail format and sales promotion in their study, but only a few who emphasize capacity as part of the retail format. This can be considered as potential gaps to research to understand the impact of retailers' pricing strategy. Also, the use of supply chain perspective in the analysis is found to be limited even though the study of retail pricing strategy has been performed for years. An illustration of the potential research opportunity by mapping the existing work explained in the previous sections can be seen in Figure 1.

Although this paper addresses several aspects in retail pricing, it has provided a good initial identification on research opportunity for supply chain. This can be considered as a contribution as no study has investigated the issue of retail pricing strategy in supply chain. However, this literature review still can be extended to obtain a deeper insight as well as more findings in identifying the opportunity for research. For example, addressing research in retail pricing and joint lot sizing might be useful for future literature review, as joint lot sizing is often viewed from supply chain perspective.

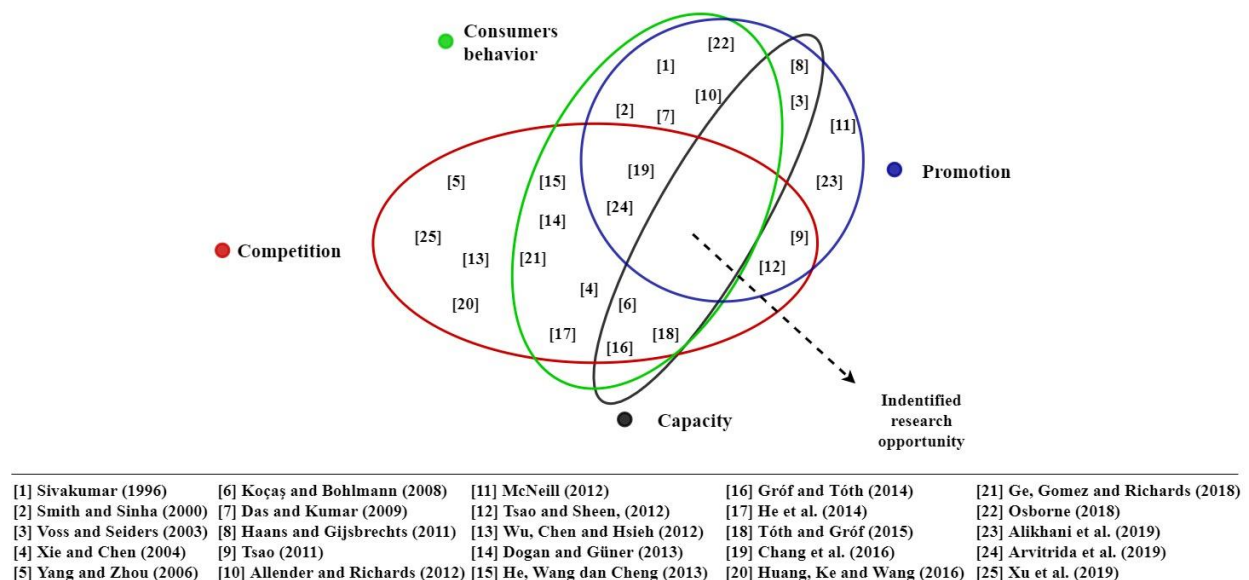


Figure 1. Research mapping and gap.

## 5. Conclusion

This paper has provided a literature review on retail pricing strategy for supply chain. A research opportunity is also identified by mapping the previous literature. The review considers several factors, which are competition, customer behavior, sales promotion, and retailer format. The types of retailers discussed in this study are stores that sell functional or convenience products, while it also investigates the extent of supply chain point of view implemented in existing studies. This paper has organized the existing literature about pricing strategy at the retailer level. This study also finds that there is not much work that uses supply chain point perspective in the previous research. As discussed in the previous section, enhancing this study can be enriched by extending the aspects that are examined, such as considering joint economic lot sizing topics in retail pricing strategy. However, in general, this study has provided a good initial basis for identifying research opportunity in pricing strategy in supply chains.

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