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The multichannel pricing dilemma: Do consumers accept higher offline than online prices?

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ABSTRACT

Whether to unify or discriminate prices in offline and online channels is a controversial topic that can be central to whether offline retailers survive in the marketplace. Field data evidence from a large multichannel retailer reveals a sobering picture. On average, only offline price premiums of approximately 2% seem feasible, and such premiums vary largely by product categories and price levels. High-priced products, which consumers perceive as risky, tend to allow offline price premiums, as do low-priced, takeaway items. However, in between these two extremes, the results show no potential for offline price premiums. Drawing on price fairness theory, we further explore consumer responses to higher offline prices in three experimental studies. In contrast with the assumptions of price fairness theory, the provision of purchase advisory services and communication of the price motive hardly stimulate consumer acceptance of higher offline prices in our context. However, the findings reveal important heterogeneity in consumer responses depending on their market segment, because some market segments indeed respond less negatively to higher offline prices. In addition, consumers accept offline price premiums for unplanned purchases.

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1. Introduction

How multichannel companies with offline and online distribution channels set their prices can ultimately determine their survival in the marketplace. Increased price pressure from pure players (i.e., Internet-only distributors) and consumer migration to these players have already led to bankruptcy filings by large and renowned retail companies (e.g., RadioShack in the United States; Praktiker in Europe). However, when setting prices, multichannel retailers face a significant dilemma. On the one hand, they often meet intense competition online due to the presence of pure players. Pure online players, such as Amazon.com¹ and eBay (or their competitors), can set lower prices and raise awareness with their partly aggressive pricing strategy. Thus, multichannel companies might attempt to meet lower online price levels in their offline stores. On the other hand, these companies have different cost structures, such as high capital costs (e.g., rent, personnel) and thus struggle to meet the lower price levels. Therefore, they might aim to establish different offline and online pricing levels (Kireyev, Kumar, & Ofek, 2017).

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¹ Amazon.com has recently opened brick-and-mortar stores that sell books or groceries only (Alter & Wingfield, 2016). However, for other product categories, it continues to operate as a pure online player.

In-depth interviews we conducted with 10 managers from different industries indicate that multichannel companies currently pursue various strategies. Some companies charge consistent prices across offline and online channels (e.g., apparel retailers, do-it-yourself manufacturers), whereas others differentiate their prices (e.g., consumer electronics, fast-moving consumer goods retailers). Consistent with the fuzzy picture from business practice, prior investigations have found that price differences between a retailer's offline and online channels are prevalent, occasionally even exceeding 12% (Wolk & Ebling, 2010). Other studies confirm these findings, showing that multichannel retailers charge higher prices in their offline stores than in their online shop (e.g., Ancarani & Shankar, 2004; Neslin et al., 2006; Zettelmeyer, 2000). However, investigations have also found similar price levels in both offline and online channels (e.g., Pan, Ratchford, & Shankar, 2002). Thus, research is unclear on which multichannel pricing strategy firms should pursue. Indeed, in its current research priorities for 2018–2020, the Marketing Science Institute (MSI, 2018) calls for further research on multichannel management and specifically on the question, “which is the right price (...) in the right channel?”

The feasibility of a differential pricing strategy can depend on the extent to which consumers accept price differences across channels. Researchers have expressed doubts about whether companies can “actually charge different posted prices for the same item in different channels” (Neslin & Shankar, 2009, p. 79) because “consumers may perceive inconsistent prices offline and online (...) [as] unfair” (Li, Gordon, & Netzer, 2018, p. 828). Current trends reveal that consumers engage in “showrooming,” in which they shift actual purchases from the offline to the online channel (e.g., Rapp, Baker, Bachrach, Ogilvie, & Beitelspacher, 2015; Verhoef, Kannan, & Inman, 2015), a behavior that has become increasingly facilitated by apps in recent years (Mohammed, 2017). Studies have considered the negative outcomes of consumer behavior resulting from price differences, revealing that inconsistencies between channels can lead to cognitive dissonance and thus threaten to confuse, annoy, or even anger customers (e.g., Levy, Grewal, Kopalle, & Hess, 2004; Neslin et al., 2006). Furthermore, discrepant prices can lower perceived price fairness and lead to negative consumer actions, such as purchase withdrawal (Campbell, 1999; Xia, Monroe, & Cox, 2004). Given the trend toward showrooming and the ever-growing need for effective omnichannel management (e.g., Kannan & Li, 2017; Rapp et al., 2015; Verhoef et al., 2015; Verhoef, Neslin, & Vroomen, 2007), research must examine what occurs when “consumers encounter discrepant price information on their own and resulting effects on fairness” (Haws & Bearden, 2006, p. 310). The issue of whether to follow a consistent or differential pricing strategy and consumers' subsequent responses remains unresolved for multichannel companies (e.g., Kannan & Li, 2017), requiring research to examine the extent to which price differentiation occurs between channels and why it occurs (Neslin et al., 2006). Therefore, we ask the following:

RQ1. To what extent do consumers accept higher offline than online prices?

Beyond this issue, price differentiation across multiple channels requires attention to determine “what mechanisms firms use most effectively to achieve price differences” (Neslin et al., 2006, p. 106). Thus far, research has not addressed the conditions under which or how a price differentiation strategy can be effectively introduced across offline and online channels. Informed by price fairness theory, we might assume that service offerings (e.g., Bolton, Grewal, & Levy, 2007) accompanying the offline shopping process or the communication of utility-oriented and cost-based motives of price differences (e.g., Bolton, Warlop, & Alba, 2003) would increase consumer willingness to pay higher offline prices. Indeed, these predictions from price fairness theory mirror the expectations of the managers from our qualitative pre-study, who emphasized the possibility of charging a higher offline premium either with an increased offer of high-quality *purchase advisory services* or with transparent *communication* of the motives behind the price differentiation in the offline and online channel. Thus:

RQ2. Can companies stimulate consumer acceptance of higher offline prices with the provision of purchase advisory services or the communication of price motives?

In addition, studies have emphasized the need to account for consumer segments because individual differences affect channel choice (Neslin et al., 2006) and consequently can influence reactions to different offline and online pricing levels. Prior research has identified different consumer typologies (e.g., Konuş, Verhoef, & Neslin, 2008). However, prior consumer clusters are broad and distinguish consumers primarily on their channel choice or shopping attitudes (e.g., Thomas & Sullivan, 2005). Segments are particularly important in this context and can vary in attitudes, behaviors, and habits. Moreover, no extant study has linked price differentiation across offline and online channels to consumer segments. Thus:

RQ3. Do specific consumer segments differ in their reaction to higher offline prices?

To answer our research questions, we rely on field and experimental data. First, we cooperated with a leading multichannel retailer. A central strength of the field data is that they involve actually purchased products across a wide range of price points and product categories. Prior research has thus far relied on observations of posted prices not linked to actual transactions. Up to this point, our investigation of the acceptance of price differences based on actual purchases is unique to the multichannel pricing literature (e.g., Ratchford, 2009; Wolk & Ebling, 2010) and allows valid inferences about consumer behavior. Second, we conducted several experimental studies in which we investigated the effects of purchase advisory services, communication of price motives, and type of purchase (planned vs. unplanned). Using these data, we explore consumers' behavioral processes and test whether different influencing factors can increase the acceptance of higher offline than online prices.

Our study makes three important contributions. First, we address the call from the MSI (2018) by shedding light on whether companies can successfully charge different prices across offline and online channels. The results show that for our dataset, multichannel price differentiation is feasible *but* its extent is rather limited, with an average possible offline premium of 2.12%. In

addition, we find that offline premiums are particularly feasible for high-priced products and low-priced takeaway products. Second, our study is one of the first to respond to [Haws and Bearden's \(2006\)](#) call for research to investigate how consumers react to price differentiation across offline and online channels. We observe important heterogeneity between consumer segments in their reactions to price differentiation across offline and online channels, with some segments accepting an offline surplus up to 5%. Third, we use price fairness theory and test it in the offline/online context. In contrast with prior studies on price fairness theory, typically suggested actions, such as service offerings in the form of purchase advice or communications about the motives behind the price differences, do not effectively prompt the acceptance of higher offline prices in our setting. [Table 1](#) provides an overview of the related research fields and summarizes the contributions.

Our study also offers important implications for managers. The focal managerial implication stems from the observation that customers seem willing to pay offline premiums for high-priced products they perceive as risky. This finding implies that offline stores might have a confidence bonus. If so, managers could leverage this confidence-inspiring characteristic of their offline channel by, for example, assuring customers that they have a personal contact in the event that problems with the product occur.

We organize this article into two parts. In the first part, we investigate data from one multichannel retailer to analyze potential offline/online price differentiation. To explore this possibility, we estimate offline and online demand models and conduct a grid search procedure. In the second part, we examine consumer reactions to offline price premiums. Specifically, we draw on price fairness theory and develop a conceptual model that we test in three experimental studies. We also investigate which actions companies can assume will affect consumer acceptance of offline price premiums.

2. Study 1: field data evidence

2.1. Data and analysis

To investigate whether consumers accept higher offline prices, we cooperated with one of the leading multichannel retailers in Europe. The cooperating retailer has a flourishing online shop and sets online prices centrally. Local store managers set offline

Table 1

Overview of literature fields related to multichannel pricing and segmentation and of the related contributions of this study.

	Previous research relevant to this study		Major contributions of this study
	Research on multichannel price differentiation	Research on multichannel consumer segments	
Key studies	Ancarani and Shankar (2004) , Neslin et al. (2006) , Pan et al. (2002) , Wolk and Ebling (2010) , Zettelmeyer (2000)	De Keyser, Schepers, and Konuş (2015) , Keen, Wetzels, De Ruyter, and Feinberg (2004) , Konuş et al. (2008) , Pauwels, Leeflang, Teerling, and Huizingh (2011) , Thomas and Sullivan (2005)	
Key insights	<ul style="list-style-type: none"> Studies show contradictory results on whether firms set consistent or differentiated prices across offline and online channels. If firms differentiate prices across channels, prices tend to be higher offline than online. Conceptual argumentation of underlying reasons for and potential of multichannel price differentiation. 	<ul style="list-style-type: none"> Prior research finds three to four consumer segments in a multichannel context. Segmentation is based on, for example, purchase phase, psychographics, and channel use. Identification of an increased presence of multichannel shoppers (Konuş et al., 2008). 	
Scope	<p>Research gap: Lack of a clear indication of whether firms (should) differentiate or unify prices across offline and online channels</p> <p>Company perspective</p> <p>Research gap: Previous research neglects empirical investigation of whether consumers accept different offline and online price levels and particularly calls for transactional field data.</p>	<p>Consumer perspective</p> <p>Research gap: Lack of insights into the relationship between multichannel consumer segments and price differentiation</p>	<p>Contribution 1: Quantitative investigations of whether firms differentiate or unify prices across channels based on unique field data.</p> <p>Contribution 2a: Quantitative investigations of consumers' overall and segment-specific acceptance of multichannel price differentiation based on experimental and field data.</p>
Key focus	<p>Dependent variables, such as price level, price dispersion, and channel choice</p> <p>Research gap: Lack of insight into the mechanisms that can stimulate the acceptance of price differences across offline and online channels</p>	<p>Consumer segmentation characteristics, such as channel behavior and price sensitivity</p> <p>Research gap: Selection of consumer segmentation characteristics is limited, and prior clusters are broad. Individual evaluations of channel perception have not been incorporated.</p>	<p>Contribution 3: Quantitative investigations of potential mechanisms to prompt the acceptance of higher offline than online prices in specific contexts.</p> <p>Contribution 2b: Comprehensive investigation of consumer clusters by incorporating extensive characteristics, such as product attitude, channel behavior, channel perception, psychographics, and demographics.</p>

prices on a decentralized basis. The retailer provided us with information on all its stores and many products over 18 months (January 2016–June 2017). Notably, we gained access not only to pricing information but also to actual purchases; that is, the company provided us with information on the prices at which actual purchases were made. In this respect, we have access to a unique dataset. We are not aware of a comparable study on offline/online prices that employs transactional data. Instead, prior studies rely on posted prices (e.g., [Ratchford, 2009](#); [Wolk & Ebling, 2010](#)), which do not allow valid inferences about consumer behavior. Specifically, we analyzed transaction data for 28 products from a broad set of product categories.

For the data analysis, we specify linear demand models (e.g., [Cui, Raju, & Zhang, 2007](#)). In addition to own-channel effects of offline and online prices, we allow for potential cross-channel price effects; that is, we allow for the possibility that online (offline) prices affect offline (online) demand. The assumption of cross-channel effects seems reasonable because recent studies have shown the cross-channel effects of, for example, online advertising (e.g., [Danaher & Dagger, 2013](#); [Dinner, Van Heerde, & Neslin, 2014](#)) or informational websites ([Pauwels et al., 2011](#)) on offline sales. In the context of pricing, online prices could affect offline demand because consumers search for pricing information online and, from this information, decide to visit the offline store.

Because the multichannel retailer maintains a large number of offline stores and only one online channel, the data structures differ between the offline and online demand models. For the offline demand models (Eq. (1)), we rely on panel regressions with outlet-fixed effects and have access to, on average, 5789 outlet-week observations per product. For the online demand models (Eq. (2)), we rely on time-series regressions with an average sample size of 54.04 weeks per product. In both models, we also include monthly fixed effects to account for seasonal patterns in product demand. Thus, the resulting regression equations are as follows:

$$q_{\text{off},n,t} = a + bp_{\text{off},n,t} + cp_{\text{on},t} + \text{MONTH} + \text{OUTLET} + \varepsilon_{\text{off},n,t} \quad (1)$$

$$q_{\text{on},t} = d + ep_{\text{off},t} + fp_{\text{on},t} + \text{MONTH} + \varepsilon_{\text{on},t} \quad (2)$$

Table 2

Study 1: Offline price premiums for 28 products (grid search results).

Product	Best offline price	Best online price	Offline price premium (abs.)	Offline price premium (rel.)	Risk perception	Impulsive unplanned buying
1 Fridge	703.44 €	683.83 €	19.61 €	2.87%	4.53	1.47
2 Dryer	665.77 €	650.00 €	15.77 €	2.43%	4.76	1.41
3 TV	594.42 €	585.00 €	9.42 €	1.61%	4.65	1.65
4 Washing machine	564.70 €	551.20 €	13.50 €	2.45%	4.59	1.47
5 Notebook	410.57 €	403.00 €	7.57 €	1.88%	4.53	1.71
6 Dishwasher	351.31 €	338.61 €	12.70 €	3.75%	4.59	1.47
7 Printer	269.58 €	266.68 €	2.90 €	1.09%	4.24	2.06
8 Steam iron	215.24 €	208.83 €	6.41 €	3.07%	3.35	2.65
9 Tablet	129.71 €	127.03 €	2.68 €	2.11%	3.71	2.29
10 Scanner	91.91 €	91.33 €	0.58 €	0.64%	3.29	2.35
11 Microwave	83.88 €	83.20 €	0.68 €	0.82%	3.12	2.82
12 Juicer	83.85 €	83.80 €	0.05 €	0.06%	2.76	3.24
13 Handheld vacuums (Variant 1)	74.75 €	74.75 €	0.00 €	0.00%	2.87	3.23
14 Beard trimmer	75.14 €	74.73 €	0.41 €	0.55%	2.88	3.12
15 Vacuum cleaner	74.18 €	74.17 €	0.01 €	0.01%	3.11	2.78
16 Flashlight	66.91 €	66.60 €	0.31 €	0.47%	2.35	3.71
17 Steamer	65.65 €	65.65 €	0.00 €	0.00%	3.00	3.29
18 Hair dryer (Variant 1)	62.34 €	62.67 €	−0.33 €	−0.53%	2.75	3.88
19 Hand mixer	55.25 €	55.25 €	0.00 €	0.00%	2.88	3.59
20 Water kettle	49.84 €	49.84 €	0.00 €	0.00%	2.35	3.94
21 Toaster (Variant 1)	42.90 €	42.90 €	0.00 €	0.00%	2.50	3.88
22 Blender	42.42 €	42.16 €	0.26 €	0.62%	2.59	3.53
23 Toothbrush (Variant 1)	35.30 €	35.28 €	0.02 €	0.06%	2.13	4.25
24 Hair curler	29.02 €	27.95 €	1.07 €	3.83%	2.06	4.35
25 Hand vacuums (Variant 2)	18.84 €	17.75 €	1.09 €	6.14%	2.18	4.88
26 Toaster (Variant 2)	14.82 €	13.87 €	0.95 €	6.85%	2.22	4.22
27 Hair dryer (Variant 2)	15.86 €	15.07 €	0.79 €	5.24%	2.11	4.44
28 Toothbrush (Variant 2)	12.10 €	10.68 €	1.42 €	13.30%	1.56	4.56
Mean values:						
• High-priced products (1–9)			10.06 €	2.36%	4.32	1.80
• Medium-priced products (10–23)			0.14 €	0.19%	2.76	3.40
• Low-priced products (24–28)			1.06 €	7.07%	2.02	4.49

Notes: Values in bold display calculated relative offline price premiums >1.00%. The results are sorted by descending offline price levels. Risk perceptions and the degree of impulsive/unplanned buying were measured in a post hoc survey.

where $q_{off,n,t}$ is the offline demand for offline store n in week t , $p_{off,n,t}$ is the offline price for offline store n in week t , $p_{on,t}$ is the online price in week t , $q_{on,t}$ is the online demand in week t , $p_{off,t}$ is the average offline price in week t , $MONTH$ captures monthly fixed effects, $OUTLET$ captures outlet fixed effects, and $\varepsilon_{off,n,t}$ and $\varepsilon_{on,t}$ are residual error terms.

To identify the best prices for the multichannel retailer to charge, we relied on a grid search procedure. Using the estimated demand models (Eqs. (1) and (2)), we calculated the retailer's profit for various combinations of offline and online prices. Notably, we restricted the grid in two ways. First, offline and online quantities should be positive, and second, offline and online prices should exceed unit costs.

2.2. Results

The resulting regression models revealed the following patterns: consistent with our expectation, the demand in each channel is negatively related to the price in the channel. We also observe several cross-channel effects, though these do not represent the focus of our study. For high-priced products (products 1–9), in most cases ($N = 6$), the online price lowers offline sales volumes. For the remaining products, we observe only one negative online price effect, some positive effects ($N = 4$), and mostly non-significant effects ($N = 15$). We observe fewer cross-channel effects of the offline price on online sales volume, which aligns with the observations of Verhoef et al. (2007), who find that consumers predominantly rely on the online channel to research and then purchase offline. Typically ($N = 24$), we observe no cross-channel effects of the offline price on online sales volume. We find negative cross-channel effects only in three cases and one positive cross-channel effect.

Table 2 represents the best prices the multichannel retailer can charge derived from our grid search procedure. We consider a difference between offline and online prices managerially important if the difference is at least 1%. For 14 of the 28 analyzed products, we observe offline price premiums that are 0 or close to 0. For the remaining products, we observe offline price premiums ranging from 1.09% for printers, to 3.75% for dishwashers, to 13.30% for a toothbrush. In Table 2, we sort the products by their respective offline prices from our grid search and find offline price premiums only at the extremes—that is, for low-priced products at the bottom (average offline price premium: 1.06 € [abs.] and 7.07% [rel.]) and for high-priced products at the top (average offline price premium: 10.06 € [abs.] and 2.36% [rel.]). For medium-priced products, we observe no managerially relevant offline price premiums (average offline price premium: 0.14 € [abs.] and 0.19% [rel.]).

We also uncover a relationship between offline price premiums and the price level but not the product category. When we searched for best prices for products with different price levels in one product category, we observed divergent offline price premiums. For example, we found no feasible offline price premium for a medium-priced toaster (Toaster (Variant 1): 0.00%) but an offline price premium for a low-priced toaster (Toaster (Variant 2): 6.85%). To further understand these results, in a post hoc analysis, we asked 29 participants who were unaware of the study's results to rate the 28 products from Table 2 in terms of their perceived risk level and their purchasing situation (i.e., degree of spontaneity and unplanned purchases). The results show that high-priced products display high risk levels while low-priced products seem to represent typical takeaway items for which consumers do not engage in price search; therefore, the company could potentially charge an offline price premium.

In summary, in our setting, for only a small number of products do offline price premiums seem feasible. For high-priced products, which consumers perceive as risky, we find offline price premiums; however, these premiums are rather small. For takeaway products, we observe relatively larger offline premiums.

3. Exploration of behavioral processes: conceptual background

3.1. Price fairness theory in the context of price differentiation

In the following, we investigate the behavioral processes that might explain consumer reactions to offline price premiums and what actions companies can take to affect offline price premiums. Price fairness theory serves as the theoretical foundation of our study because researchers expect that “deviation from uniform prices (...) is likely to cause fairness problems” (Li et al., 2018, p. 828, emphasis added). Price fairness theory has been applied in many contexts—for example, to show how companies can successfully communicate price increases and to explain price differentiation between various indirect distribution channels (Kahneman, Knetsch, & Thaler, 1986a). Price fairness theory proposes that consumers evaluate whether a price is fair by using external reference prices. The perception of whether a price is fair or unfair stems from their assessment of whether the price is reasonable, acceptable, or justifiable (e.g., Bolton et al., 2003; Xia et al., 2004).

The dual entitlement principle and attribution theory help explain why different price levels can exist. According to the dual entitlement principle, firms are entitled to a reference profit and customers to a reference price. When the reference profit is endangered, different pricing levels become possible to compensate for rising operating or rental costs. Then, a firm “may set new terms that protect its profit at transactors' expense” (Kahneman, Knetsch, & Thaler, 1986b, p. 730). According to attribution theory, a firm's presumed motives behind a price change influence consumers' perception of price fairness (Campbell, 1999). However, consumers can struggle to detect the right motive, because their knowledge of company information is often low. Therefore, research has investigated the concept of procedural fairness (Thibaut & Walker, 1975) in terms of how a firm should obtain its profit; consumers are willing to accept higher prices if sellers justify them on the basis of quality rather than costs (Bolton et al., 2003). Thus, in the case of price discrimination, a firm should

base its motive on costs and value delivered to customers to increase perceived price fairness of the higher price and, consequently, willingness to purchase at this price.

3.2. Offline/online price differentiation: development of the conceptual model

Prior research suggests that the key to successful price differentiation between offline and online channels is perceived price fairness because this psychological factor affects consumer reactions to prices and, therefore, company profits (e.g., Campbell, 1999; Kahneman et al., 1986a, 1986b). Research has demonstrated a strong link between perceived price fairness and purchase intentions (e.g., Campbell, 1999; Maxwell, 2002). First, price fairness theory suggests that knowledge of how and why a price has been set affects customers' perceived price fairness and willingness to purchase (Maxwell, 2002). Thus, as long as the inferred motive for a price difference between offline and online channels is positive (e.g., offering both cost- and value-based arguments), consumers might accept higher offline prices. In addition, compared with online channels, offline channels incur higher rental and operating costs. According to the dual entitlement principle, the different cost structures of offline and online channels suggest that companies can charge higher offline prices to maintain their reference profit. Furthermore, because search and transaction costs are lower online (e.g., Ratchford, 2009; Zettelmeyer, Scott Morton, & Silva-Risso, 2006) and because the provision of channel functions is cheaper online than offline, consumers are likely to perceive a higher offline price as fair.

Second, we include two potential company actions in our conceptual model that might help justify or at least mitigate negative responses to different offline and online price levels: provision of purchase advisory services and communication of price motives. The provision of a purchase advisory service can be beneficial for companies. In addition to providing a cost signal (Hamilton & Chernev, 2013), higher consumer evaluations of services offered might lead to a higher willingness to pay to receive those services (Bolton et al., 2003), thus increasing consumers' likelihood of accepting price discrimination. The service level likely enhances customer value and helps differentiate the company from competitors (Hamilton & Chernev, 2013). Therefore, different service levels in offline and online channels can lead to different price images and, thus, different perceptions of price fairness. Ultimately, this scenario could lead to greater acceptance of channel-based price discrimination. We investigate this possibility in Study 2.

Furthermore, price fairness theory suggests that communicating different price motives can drive perceptions of price fairness. That is, informing consumers about why a price is different and what the cost structure consists of can enhance perceived price fairness (e.g., Xia et al., 2004) and thus lower the negative effect of price discrimination. To increase perceived price fairness, the communication of price motives should focus not only on a firm's costs (Campbell, 1999; Maxwell, 2002) but also on the value it provides to the consumer, such as increased quality (e.g., Bolton et al., 2003). Research indicates that consumers are willing to pay higher prices if sellers' argument is based on quality rather than costs (Bolton et al., 2003).

Company-internal (e.g., shop assistant) or company-external (e.g., media report) sources can serve to communicate the reason for offline/online price differences. Because companies are likely to control a company-internal source, we initially consider a company-internal source in Study 2. However, because prior research on the communication of price changes indicates that in the case of a price increase, an objective, inhuman source should provide the price information (e.g., Campbell, 2007), we also investigate a company-external source of communication in Study 3.

Finally, the type of purchase—unplanned vs. planned—can affect consumers' perceptions of price fairness and resultant buying intentions. In the case of unplanned purchases, consumers might purchase their goods spontaneously (i.e., unplanned) and be unaware of exact prices or competitor offerings. However, in the case of planned purchases, consumers might conduct an extensive search (e.g., high acquisition value) and might notice differences between offline and online prices, leading to lower perceived fairness and unwillingness to buy at that price (e.g., Kalyanaram & Little, 1994). Therefore, consumers might be more willing to accept a higher offline price for unplanned purchases than for planned purchases. We investigate this possibility in Study 4. Fig. 1 illustrates our conceptual framework.

Fig. 1. Conceptual framework.

3.3. Incorporating consumer heterogeneity in offline/online price differentiation

In our discussion thus far, we have outlined the general relationship between consumers and different offline and online pricing levels. However, we have neglected potential heterogeneity between consumer segments, which might also affect consumer behavior. Heterogeneity can arise from the degree to which each channel's functions satisfy consumer needs. On the one hand, some consumer segments might appreciate the offline channel because it satisfies the need for *offline information perception* (e.g., Grewal et al., 2010), the need for high *service quality* (e.g., Montoya-Weiss, Voss, & Grewal, 2003), or the need for *immediate product reception* (e.g., Verhoef et al., 2007). Furthermore, delivering information in the form of personal advisory services can lower the perceived risk of a bad buy or bad bargain (e.g., Montoya-Weiss et al., 2003), thus increasing *perceived security*. On the other hand, some consumer segments have high *affinity* with the online channel because it fulfills their need for *online information perception* (e.g., Zettelmeyer et al., 2006), a large *assortment*, and *convenience* due to the channel's availability independent of conventional shopping hours (e.g., Chiang & Dholakia, 2003).

The downside for both channels is that consumers shopping in either channel can incur *transaction costs* (e.g., delivery time, waiting time, availability) (e.g., Grewal et al., 2010). Finally, in addition to socio-demographic attributes (i.e., *age, gender, income, education, and occupation*), we consider psychographics (i.e., *price consciousness, time pressure, decisiveness, innovativeness, need for touch, and need for cognition*) (e.g., Ailawadi, Neslin, & Gedenk, 2001), product-related criteria (i.e., *product expertise, involvement, utilitarian, and hedonic product perception*) (e.g., Kushwaha & Shankar, 2013), and channel-behavior-related criteria (i.e., *information search and purchase channel*) (e.g., Keen et al., 2004; Li & Kannan, 2014). Table 3 summarizes the employed clustering variables.

4. Study 2: main experimental study

4.1. Methodology

In Study 2, we follow a two-step approach. First, we analyze the effect of offline/online price differences on perceived price fairness and purchase intentions in our specific setting. We include purchase advisory services and communication of price differences as moderating variables. Specifically, in this study we focus on company-internal communication provided by a shop assistant. Second, we follow up with a cluster analysis to show the multifaceted consumer segments based on channel and individual consumer factors. We then analyze our conceptual framework (Fig. 1) with respect to each segment.

4.1.1. Participants

Our sample contains 642 participants (50% female; mean age = 36.1 years, ranging from 15 to 80 years). Web Appendix A illustrates the sample characteristics in detail. Following calls in prior research (e.g., Haws & Bearden, 2006), in all data collections,

Table 3
Overview of clustering variables.

Classification	Constructs
Clustering variables	
Product perception	Hedonic Utilitarian Involvement Expertise
Channel-behavior related: offline	Purchase channel Information channel
Channel-behavior related: online	Purchase channel Information channel
Channel-perception related: offline	Security Information Transaction costs Service quality Assortment Product reception
Channel-perception related: online	Affinity Security Information Transaction costs Assortment Affinity
Psychographics	Price consciousness Need for touch Need for cognition Time pressure Decisiveness Innovativeness
Demographics	Gender (f = 1; m = 2) Age

we include heterogeneous consumer samples, which offer diversity in age, education, occupation, income structure, experience, and attitudes (e.g., channel perception, channel usage, product perception). All participants took part in the study in exchange for small financial compensation (2.55 € per completed questionnaire).

4.1.2. Design and procedure

The between-subjects experimental design originally included 16 cells: 4 (price difference: price consistency/2%/5%/10%) $\times$ 2 (service: yes/no) $\times$ 2 (communication: yes/no). However, because the communication of motive is relevant only if a consumer receives different offline and online prices, two cells are neglected (price consistency and communication: yes). Thus, the experiment contains 14 cells. Participants were randomly assigned to one of the conditions and were told to behave as though they were in a real purchase situation. Participants were asked to imagine needing a TV and then visiting the offline store of a renowned multichannel retailer. As part of the scenario, participants were told that they had decided to buy the TV and then were exposed to its offline price. In addition, the scenario texts explained that participants used their smartphones and found the price of the product in the retailer's online shop.²

First, we manipulated the online price to be equal to the offline price or 2%, 5%, or 10% less than the offline price. Second, in the service condition, we manipulated whether the participants received purchase advisory service from a shop assistant during the in-store purchase decision phase. Third, in the communication condition, we manipulated whether the participant asked a shop assistant why the online price of the same product was lower. The shop assistant then provided various price fairness arguments for the price difference and noted the retailer's increased offline costs as value-added benefits to the consumer (for the full description of the scenario and experimental stimuli, see Web Appendix B). To ensure the validity of our manipulations, we conducted several pre-tests. The pre-tests revealed that the offline price level was considered fair. In addition, various manipulation and attention checks we performed did not indicate problems with our study.

4.1.3. Measurement and measurement assessment

We measured the *dependent variable* offline purchase intention on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree) with four items (Dodds, Monroe, & Grewal, 1991). We measured the *mediating variable* perceived fairness of the offline price on a 7-point Likert scale with three items each (e.g., Campbell, 1999; Grewal, Hardesty, & Iyer, 2004). We also measured *consumer characteristics* using participant demographics, psychographics, channel-perception-related constructs, product-related constructs, and channel-behavior-related constructs. Web Appendix C provides a complete list of all surveyed items and their support in the literature.

We assessed the reliability and validity of the measures with confirmatory factor analyses. All measures exceed the recommended thresholds for Cronbach's alpha ($\alpha > 0.70$). Furthermore, the construct reliability surpasses 0.60, and the average variance extracted exceeds 0.50 (Bagozzi & Yi, 1988). In addition, all items meet accepted standards of 0.40 for item reliabilities (Web Appendix C; Bagozzi & Baumgartner, 1994).

4.2. Results without consumer heterogeneity

4.2.1. Data analysis strategy

Our data analysis strategy comprised two steps. In the first step, we analyzed the total effects of our independent variables on perceived fairness of the offline price and on offline purchase intention. The price level—our focal independent variable—had four attribute levels (0% [price consistency], 2%, 5%, and 10% price difference). We dummy-coded these attribute levels using the price consistency condition as our reference group in the regression analysis. We also dummy-coded whether purchase advisory service was provided (1: service provided) and whether the reasons for the price differences were communicated (1: communication received).

In the second step, we relied on mediation analysis to test whether perceived price fairness mediated the effects of our independent variables on purchase intention (e.g., Zhao, Lynch, & Chen, 2010). Therefore, we included perceived price fairness as an additional explanatory variable in the purchase intention model. We performed seemingly unrelated regressions to calculate the direct and indirect effects (Hayes & Preacher, 2014). Table 4 shows the mean values and standard deviations for the dependent variables by experimental condition.

4.2.2. Results

Table 5 provides the regression results. We find that price differences of 5% and 10% significantly reduce perceived price fairness ($b_{5\%} = -0.82, p < .01$; $b_{10\%} = -1.15, p < .01$) and purchase intention ($b_{5\%} = -1.00, p < .001$; $b_{10\%} = -1.95, p < .01$). However, a price difference of 2% exerts only a marginally significant, negative effect on perceived price fairness ($b_{2\%} = -0.33, p < .10$) and has no significant effect on purchase intention ($b_{2\%} = -0.26, ns$).

Moreover, we find that the provision of purchase advisory services affects neither perceived price fairness ($b_{\text{Service}} = 0.13, ns$) nor purchase intention ($b_{\text{Service}} = 0.05, ns$). Communication of price motives positively affects perceived price fairness ($b_{\text{Comm.}} = 0.24, p < .05$) but is not significantly related to purchase intention ($b_{\text{Comm.}} = -0.01, ns$).

² We set up the scenario with these elements because both academics (Rapp et al., 2015; Verhoef et al., 2015) and practitioners from our pre-study (e.g., ID 9) frequently observe this type of showrooming behavior and consider it realistic. Several apps (e.g., app for Amazon.com) now exist that enable consumers to scan bar codes and compare store prices with online prices. A recent KPMG (2017) study on consumer shopping behaviors, for example, finds that approximately 77% of U.S. consumers use their smartphone when in an offline store. Most frequently, these consumers compare prices.

Table 4

Study 2: Descriptive analysis per experimental condition and per dependent variable.

Condition (Δp , service, company-internal communication)	Sample size N	Purchase intention offline		Perceived price fairness offline	
		M	SD	M	SD
1 (0%, no, no)	38	5.11	1.90	5.58	1.11
2 (2%, no, no)	45	4.89	1.97	5.21	1.53
3 (5%, no, no)	41	3.87	1.93	4.62	1.52
4 (10%, no, no)	43	3.49	1.90	4.43	1.29
6 (2%, no, yes)	50	4.89	1.97	5.74	1.32
7 (5%, no, yes)	46	4.29	1.78	5.05	1.28
8 (10%, no, yes)	51	3.46	1.77	4.71	1.24
9 (0%, yes, no)	40	5.38	1.70	5.76	1.26
10 (2%, yes, no)	50	5.38	1.70	5.41	1.29
11 (5%, yes, no)	44	4.38	1.89	4.98	1.27
12 (10%, yes, no)	48	3.16	1.69	4.74	1.21
14 (2%, yes, yes)	50	4.92	1.60	5.49	1.18
15 (5%, yes, yes)	45	4.38	2.05	5.21	1.31
16 (10%, yes, yes)	51	3.06	1.79	4.71	1.52

Notes: M: Mean value; SD: Standard deviation; Conditions 5 and 13 do not exist because the price is equal in both channels; thus, communication of price motives (Δp) does not occur. Data are measured on a 7-point Likert scale.

In addition to testing for the main effects of the pricing levels, we assessed whether the provision of services and the communication of price differences weaken consumers' negative responses to price increases. However, we observed no significant interactions between pricing level and service provision (Model 3: $b_{2\% \times \text{Service}} = -0.10$, ns, $b_{5\% \times \text{Service}} = 0.03$, ns; $b_{10\% \times \text{Service}} = -0.64$, ns) or communication (Model 3: $b_{5\% \times \text{Comm.}} = -0.37$, ns; $b_{10\% \times \text{Comm.}} = -0.10$, ns).

Table 5Study 2: Experimental model results ($n = 642$).

Variables	Model 1	Model 2	Model 3
<i>DV: Purchase intention</i>			
Constant	5.22 (0.22)***	1.30 (0.33)***	5.11 (0.30)***
2% price difference	−0.26 (0.26)	−0.03 (0.22)	−0.13 (0.38)
5% price difference	−1.00 (0.26)***	−0.43 (0.23)*	−0.76 (0.46)*
10% price difference	−1.95 (0.26)***	−1.16 (0.23)***	−1.50 (0.45)***
Communication	−0.01 (0.15)	−0.18 (0.13)	−0.16 (0.26)
Service	0.05 (0.14)	−0.04 (0.12)	0.27 (0.41)
5% × communication			−0.37 (0.38)
10% × communication			−0.10 (0.37)
2% × service			−0.10 (0.49)
5% × service			0.03 (0.50)
10% × service			−0.64 (0.49)
Perceived price fairness		0.70 (0.05)***	
<i>DV: Perceived price fairness</i>			
Constant		5.61 (0.16)***	
2% price difference		−0.33 (0.18)*	
5% price difference		−0.82 (0.19)***	
10% price difference		−1.15 (0.18)***	
Communication		0.24 (0.11)**	
Service		0.13 (0.10)	
<i>Indirect effect</i>			
2% price difference		−0.23	
5% price difference		−0.57**	
10% price difference		−0.80**	
Communication		0.17**	
Service		0.09	

Notes: Communication is company-internal communication source, and Service is purchase advisory service. In Model 2, we explore the mediating effects of perceived price fairness on offline purchase intention. Price consistency serves as the reference category. We report regression coefficients with standard errors (in parentheses). Significance tests for the indirect effects are based on 95% bias-corrected confidence intervals. Perceived price fairness functions as a mediator, except at the 2% price difference level. Because communication does not occur in the price consistency condition, we can only estimate the interactive effects of communication with the 5% and 10% levels of price difference.

* $p < .10$.** $p < .05$.*** $p < .01$.

In mediation analysis, we find that perceived price fairness exerts a significant, positive effect on purchase intention ($b_{ppf} = 0.70$, $p < .01$). In addition, we estimate 95% bias-corrected confidence intervals (CIs) for the indirect effects based on 5000 replications (Hayes & Preacher, 2014). We find significant, negative indirect effects ($b_{5\%} = -0.57$, CI $[-0.84, -0.32]$; $b_{10\%} = -0.80$, CI $[-1.07, -0.56]$) for the 5% and 10% conditions, but the indirect effect of the 2% price difference is not significant ($b_{2\%} = -0.23$, CI $[-0.46, 0.02]$). We anticipated this finding because the total effect analyzed in the purchase intention model without perceived price fairness was not significant. Moreover, we find that perceived price fairness mediates the effect of communication on purchase intention ($b_{comm} = 0.17$, CI $[0.02, 0.33]$). Because the total effect of communication on purchase intention is not significant, in addition to the perceived price fairness mediator, other mediators likely exert a countervailing negative indirect effect.

Thus, the experimental results may indicate that companies can charge a small offline surplus (2%) for a rather high-priced TV without significantly lowering consumers' purchase intentions. The results for our specific setting also show that perceived price fairness mediates the relationships and that advisory services and communication of motive do not enhance potential offline price premiums. However, even if purchase intentions do not drop significantly for a 2% offline surplus, it still might be possible that economic returns decrease in a managerially relevant manner. We rely on data from our field study (Study 1) to shed some light on this. Recall that we estimated demand equations in Study 1 that also do not consider consumer segments. Using the estimated demand equations, we systematically varied offline price premiums in accordance with our experimental study (0%, 2%, 5%, and 10% offline price premiums) and calculated the resulting profits. We took the best online price from Table 2 as our point of departure. Compared with the same prices in the offline and online channels, a 2% offline surplus leads to a profit increase of 1%. For the 5% (10%) offline surplus, we observe a 1% (11%) decrease in profits. Thus, these calculations provide some support that higher profits can compensate for reduced levels of purchase intentions for a 2% offline surplus.

4.3. Results with consumer heterogeneity

4.3.1. Data analysis strategy

In an adjacent analysis, we examined whether different consumer segments perceive the price discrimination differently. First, we used the hierarchical algorithm Ward's (1963) linkage to determine the consumer segments (Punj & Stewart, 1983). Second, we determined the optimal number of clusters according to Duda and Hart's (1973) criteria and Caliński and Harabasz's (1974) pseudo-F. Third, we employed the non-hierarchical k-means algorithm to optimize the cluster solutions. Fourth, with a Kruskal–Wallis test post hoc, we validated that the evaluations of each segment differ significantly on both clustering and non-clustering criteria (all $p < .10$). Finally, we find that the clusters are independent of the experimental conditions (Pearson $\chi^2(78) = 70.11$, $p > .73$) and price differences (Pearson $\chi^2(18) = 12.75$, $p > .81$).

4.3.2. Consumer segments

We identified six consumer segments, which we label (1) Online Determined, (2) Online Enthusiasts, (3) Indecisive and Indifferent, (4) Product Enthusiasts, (5) Multichannel Enthusiasts, and (6) Offline Determined.³ To interpret the clusters, we compared them using Duncan's (1955) multiple-range test with respect to the cluster variables (Table 3). In general, the Online Determined (14%) segment devalues the offline channel. These consumers score lowest on perceptions of the offline channel (e.g., offline service quality; $M_{off_SQ} = 3.77$) and avoid using it for either information search ($M_{off_info} = 3.14$ vs. $M_{on_info} = 5.37$) or purchase ($M_{off_purch} = 2.76$ vs. $M_{on_purch} = 4.96$). Instead, they prefer the online channel and use it as their primary information and buying channel. They display little need for touch ($M_{NFT} = 2.75$), have high need for cognition ($M_{NFC} = 5.38$), and are under time pressure ($M_{Time} = 4.71$).

Online Enthusiasts (22%) search for information ($M_{off_info} = 3.28$ vs. $M_{on_info} = 5.84$) and buy ($M_{off_purch} = 3.39$ vs. $M_{on_purch} = 5.44$) predominantly in the online channel because they perceive the characteristics of this channel positively. Similar to the Online Determined segment, Online Enthusiasts show high price consciousness ($M_{Price} = 6.24$); however, they do not devalue the offline channel, as does the Online Determined segment. They are also predominantly male.

The Indecisive and Indifferent (22%) segment shows moderate values on all criteria. In general, these consumers display a medium level of engagement in offline and online information search ($M_{off_info} = 4.22$ vs. $M_{on_info} = 4.53$) and view online purchases as requiring high effort. Furthermore, they have a low need for cognition ($M_{NFC} = 4.26$) and have doubts about the security of the online channel ($M_{Sec} = 3.73$), but they buy in both channels ($M_{off_purch} = 4.60$ vs. $M_{on_purch} = 3.53$).

Product Enthusiasts (9%) show a high product focus and score highest on product involvement ($M_{invol} = 6.14$) and expertise ($M_{Expert} = 5.11$). They value both offline and online channels for information search ($M_{off_info} = 6.01$ vs. $M_{on_info} = 5.17$) and have a high need for both touch ($M_{NFT} = 5.02$) and cognition ($M_{NFC} = 5.37$). They also have the highest perceptions of the offline channel and are quite price sensitive ($M_{Price} = 5.55$).

Multichannel Enthusiasts (19%) represent another segment that prefers both channels. However, in contrast with the Indecisive and Indifferent segment, this segment engages in information search ($M_{off_info} = 5.17$ vs. $M_{on_info} = 5.70$), shows a high need for cognition ($M_{NFC} = 5.09$), and exhibits high price consciousness ($M_{Price} = 5.89$).

Finally, the Offline Determined (15%) segment adversely mirrors the Online Determined segment. These consumers score high on all offline channel attributes and devalue the online channel. For example, they cast doubts on the security of the online

³ We also ran a cluster analysis in Study 3. Study 3, which is a refined replication of Study 2, again showed an optimal number of six clusters. Comparable to Study 2, we found that consumers' offline purchases intentions dropped significantly for offline price premiums ranging between 0% and 5% depending on the segment.

channel ($M_{\text{Sec}} = 3.73$). They generally shop offline ($M_{\text{Off_purch}} = 6.01$ vs. $M_{\text{On_purch}} = 2.12$), have a high need for touch ($M_{\text{NFT}} = 4.62$), and are the least price sensitive among the different segments ($M_{\text{Price}} = 4.38$).

4.3.3. Consumer segment-specific results

To account for heterogeneity in the response to price differences, we replicated our analyses for the six segments, with purchase intention and perceived price fairness as the dependent variables. Table 6 illustrates these model results for each consumer segment.

Consistent with the channel preferences and price consciousness of the Online Determined and Online Enthusiast segments, we observe strong negative reactions to price differences in our research setting. The Online Determined segment does not value the provision of offline services, which affects neither their perceived price fairness ($b_{\text{OnDet}} = -0.26$, *ns*) nor purchase intention ($b_{\text{OnDet}} = -0.08$, *ns*). However, the provision of service increases perceived price fairness for Online Enthusiasts ($b_{\text{OnEnt}} = 0.56$, $p < .01$). Our data suggest that Product Enthusiasts display high product knowledge, and the additional benefits offered in the offline channel do not favorably affect their purchasing intentions. Rather, this segment exhibits strong negative reactions to price differences ($b_{2\%, \text{ProdEnt}} = -1.05$, $p < .10$) and reacts negatively to the provision of services ($b_{\text{ProdEnt}} = -0.63$, $p < .05$). The two multichannel segments and the Offline Determined segment respond only to large price differences (i.e., $>5\%$).

A striking result is that the possibility to differentiate prices depends largely on the respective segments. We find that only one segment (Product Enthusiasts) reports lower purchase intentions when confronted with a 2% offline surplus. Three segments (Indecisive and Indifferent, Multichannel Enthusiasts, and Offline Determined) do not report significant reductions in their purchase intentions even when confronted with a 5% offline surplus.

Table 6

Study 2: Mediation model results depending on the consumer segment.

Variables	Online determined (<i>n</i> = 90)		Online enthusiasts (<i>n</i> = 139)		Indecisive and indifferent (<i>n</i> = 139)		Product enthusiasts (<i>n</i> = 58)		Multichannel enthusiasts (<i>n</i> = 123)		Offline determined (<i>n</i> = 93)	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
<i>DV: Purchase intention</i>												
Cons.	5.10 (0.67)***	2.30 (0.94)**	4.50 (0.43)***	1.98 (0.74)***	5.15 (0.39)***	1.80 (0.60)***	7.20 (0.55)***	3.53 (1.2)***	5.04 (0.48)***	0.57 (0.70)	6.27 (0.58)***	1.96 (0.84)**
2% Δp	−1.09 (0.75)	−0.67 (0.70)	−0.58 (0.54)	−0.33 (0.52)	0.23 (0.47)	0.46 (0.41)	−1.05 (0.61)*	−0.50 (0.55)	0.29 (0.53)	0.15 (0.43)	−0.42 (0.64)	−0.42 (0.53)
5% Δp	−2.14 (0.75)***	−1.48 (0.71)**	−1.34 (0.54)**	−0.77 (0.53)	−0.49 (0.51)	−0.04 (0.45)	−1.52 (0.60)**	−0.86 (0.55)	−0.34 (0.54)	−0.02 (0.44)	−0.99 (0.65)	−0.60 (0.54)
10% Δp	−2.73 (0.74)***	−2.01 (0.71)***	−2.36 (0.51)***	−1.72 (0.51)***	−1.22 (0.49)**	−0.48 (0.44)	−2.14 (0.61)***	−1.41 (0.56)**	−1.46 (0.56)**	−0.94 (0.46)**	−1.89 (0.66)***	−1.27 (0.56)**
Comm.	−0.13 (0.42)	−0.38 (0.39)	0.12 (0.31)	0.08 (0.30)	−0.06 (0.86)	−0.33 (0.27)	0.18 (0.37)	−0.21 (0.36)	−0.36 (0.32)	−0.48 (0.26)**	0.27 (0.39)	0.34 (0.33)
Service	−0.08 (0.40)	0.05 (0.37)	0.43 (0.30)	0.18 (0.29)	−0.46 (0.28)	−0.36 (0.24)	−0.63 (0.35)**	−0.78 (0.33)**	0.19 (0.31)	−0.02 (0.25)	−0.38 (0.38)	−0.29 (0.32)
PPF		0.49 (0.12)***		0.46 (0.11)***		0.61 (0.09)***		0.58 (0.17)***		0.81 (0.10)***		0.73 (0.11)***
<i>DV: Perceived price fairness</i>												
Cons.		5.71 (0.52)***		5.43 (0.30)***		5.46 (0.31)***		6.34 (0.38)***		5.50 (0.33)***		5.86 (0.42)***
2% Δp		−0.86 (0.58)		−0.54 (0.38)		−0.38 (0.38)		−0.95 (0.43)**		0.16 (0.37)		0.01 (0.47)
5% Δp		−1.36 (0.58)**		−1.23 (0.38)**		−0.72 (0.41)*		−1.15 (0.42)***		−0.40 (0.37)		−0.54 (0.48)
10% Δp		−1.47 (0.58)**		−1.37 (0.36)***		−1.22 (0.40)***		−1.25 (0.43)***		−0.63 (0.39)		−0.85 (0.49)*
Comm.		0.51 (0.33)		−0.08 (0.22)		0.45 (0.25)*		0.67 (0.26)***		0.14 (0.23)		−0.10 (0.29)
Service		−0.26 (0.31)		0.56 (0.21)***		−0.18 (0.23)		0.25 (0.25)		0.25 (0.21)		−0.12 (0.28)
<i>Indirect effects</i>												
2% Δp		−0.42		−0.25		−0.23		−0.55**		0.13		0.01
5% Δp		−0.67*		−0.57**		−0.44**		−0.66**		−0.32		−0.40
10% Δp		−0.72*		−0.63**		−0.75**		−0.73**		−0.51*		−0.62**
Comm.		0.25		0.04		0.27**		0.39**		0.12		−0.08
Service		−0.13		0.26**		−0.11		0.15		0.20		−0.09

Notes: Δp is price difference, *Comm.* is company-internal communication source, *Service* is purchase advisory service, and *PPF* is perceived price fairness. We test the mediating role of perceived price fairness in Models 2, 4, 6, 8, 10, and 12. We provide regression coefficients with standard errors in parentheses. Price consistency is the reference category. Significance tests for the indirect effects are based on the 95% or 90% bias-corrected confidence intervals.

* $p < .10$.

** $p < .05$.

*** $p < .01$.

Independent of the segments, service provision and communication of motive offer little possibility to increase offline purchase intentions in our context. Communicating the motives for the price difference increased perceived price fairness only for two segments (Indecisive and Indifferent and Product Enthusiasts). However, this potentially positive effect on purchase intention appears to be offset by another mediator, as total effects for both Indecisive and Indifferent ($b_{\text{Ial}} = -0.06$, *ns*) and Product Enthusiasts ($b_{\text{ProdEnt}} = 0.18$, *ns*) are not significant.

5. Studies 3 and 4: replications and extensions of the main study (Study 2)

Experimental Studies 3 and 4 replicate Study 2 and focus on additional influencing factors that might increase the acceptance of channel-based price differentiation. In Study 3, we made two major changes from Study 2. First, we changed the product category from consumer electronics to office supply (Printer: 99 €⁴) to exclude product-related biases. Second, we changed the communication manipulation from a company-internal source (i.e., shop assistant) to a company-external source (i.e., media report). This change should account for potentially confounding effects because consumers might trust company-external sources more than company-internal sources. In Study 4, compared with Study 2, we shifted from a high-priced to a low-priced product (DVD movie: 13 €) and investigate the type of purchase (planned vs. unplanned).

5.1. Study 3: effects of company-external communication

5.1.1. Participants, design, and procedure

In total, 601 participants took part in this study and received the same amount of compensation as in Study 2. The sample comprises 49.75% female consumers with a mean age of 36.50 years. The between-subjects design was 4 (price difference: price consistency/2%/5%/10%) $\times$ 2 (company-external communication: yes/no). The scenario is available in Web Appendix D. All measures were identical to Study 2.

5.1.2. Results

Web Appendix E provides an overview of the descriptive results of Studies 3 and 4. Regression results (Table 7) for our setting reveal that all price differences significantly reduce perceived price fairness (Model 2: $p < .05$) and purchase intention (Model 1: $p < .01$). Company-external communication has a significant effect on perceived price fairness (Model 2: $b_{\text{External}} = 0.49$, $p < .01$) and purchase intention (Model 1: $b_{\text{External}} = 0.39$, $p < .01$). As with company-internal communication (Study 2), we find no significant interaction effects of price difference and company-external communication on perceived price fairness or purchase intention (Model 3: $b_{2\% \times \text{External}} = -0.03$, *ns*; $b_{5\% \times \text{External}} = 0.37$, *ns*; $b_{10\% \times \text{External}} = -0.03$, *ns*). Mediation analyses revealed that perceived price fairness mediates the effects of price differences and company-external communication on purchase intention offline (Model 2).

5.2. Study 4: effects of unplanned purchases

5.2.1. Participants, design, and procedure

In total, 518 participants took part in Study 4. The sample includes 47.30% female consumers with a mean age of 34.84 years. The between-subjects design was 4 (price difference: price consistency/2%/5%/10%) $\times$ 2 (type of purchase: unplanned/planned). The scenario is available in Web Appendix F. The product was a DVD movie (13 €), and measures were identical to Study 2. Furthermore, we designed the presentation of the online price to be less conspicuous. The corresponding online prices appeared in small letters next to the offline price on the price tag in-store. Thus, a sales force conversation did not occur in this setting.

5.2.2. Results

Regression results (Table 7) for this setting reveal that only the 5% and 10% price differences significantly reduce perceived price fairness (Model 5: $b_{2\%} = -0.03$, *ns*; $b_{5\%} = -0.57$, $p < .01$; $b_{10\%} = -1.06$, $p < .01$), but all price differences lower purchase intention (Model 4: $b_{2\%} = -0.48$, $p < .05$; $b_{5\%} = -1.25$, $p < .01$; $b_{10\%} = -2.12$, $p < .01$). Planned purchases do not significantly influence perceived price fairness (Model 5: $b_{\text{Planned}} = 0.13$, *ns*) or purchase intention (Model 4: $b_{\text{Planned}} = 0.05$, *ns*). We find a significant interaction effect of the 2% offline price premium and planned purchases on purchase intentions (Model 6: $b_{2\% \times \text{Planned}} = -0.90$, $p < .10$). For unplanned purchases in our setting, the effect of a 2% offline price premium is not significant (Model 6: $b_{2\%} = -0.02$, *ns*).

These results align with those of our field study. In the field study, our grid search suggests offline price premiums for low-priced products; these products are typical takeaway items that consumers often buy spontaneously on impulse. The difference in the magnitude between Study 1 and Study 4 can be explained by differences in price knowledge. Although we assume that in the field study, consumers did not engage in a price search for low-priced items, in the experimental studies, the design of Study 1 informed consumers' price knowledge.

⁴ Similar to Study 2, we determined appropriate offline price levels for Study 3 and Study 4 using Dodds et al.'s (1991) willingness-to-pay scale in a pre-test ($n = 122$).

Table 7

Studies 3 & 4: Regression results.

	Study 3 (n = 601)			Study 4 (n = 518)		
	Moderator: Company-external communication			Moderator: Planned purchase		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<i>DV: Purchase intention</i>						
Constant	6.09*** (0.14)	2.23*** (0.05)	6.13*** (0.18)	5.95*** (0.19)	2.15*** (0.29)	5.69*** (0.24)
2% price difference	−0.71*** (0.18)	−0.47** (0.15)	−0.70** (0.26)	−0.48** (0.23)	−0.46*** (0.19)	−0.02 (0.33)
5% price difference	−1.14*** (0.18)	−0.84*** (0.15)	−1.33*** (0.26)	−1.25*** (0.23)	−0.86*** (0.19)	−0.91*** (0.32)
10% price difference	−2.24*** (0.18)	−1.75*** (0.16)	−2.22*** (0.26)	−2.12*** (0.23)	−1.38*** (0.20)	−1.90*** (0.33)
Moderator	0.39** (0.13)	0.06 (0.11)	0.31 (0.26)	0.05 (0.16)	−0.04 (0.14)	0.55* (0.33)
2% × moderator			−0.03 (0.36)			−0.90* (0.46)
5% × moderator			0.37 (0.36)			−0.66 (0.46)
10% × moderator			−0.03 (0.36)			−0.40 (0.47)
Perceived price fairness		0.68*** (0.05)			0.69*** (0.05)	
<i>DV: Perceived price fairness</i>						
Constant		5.70*** (0.11)			5.50*** (0.15)	
2% price difference		−0.36** (0.14)			−0.03 (0.19)	
5% price difference		−0.44** (0.14)			−0.57*** (0.18)	
10% price difference		−0.72*** (0.14)			−1.06*** (0.19)	
Moderator		0.49*** (0.10)			0.13 (0.13)	
<i>Indirect effect</i>						
2% price difference		−0.24**			−0.02	
5% price difference		−0.30**			−0.40**	
10% price difference		−0.49**			−0.73**	
Moderator		0.33**			0.09	

Notes: We test the mediating role of perceived price fairness in Models 2 and 5. We provide regression coefficients with standard errors in parentheses. Price consistency is the reference category. Significance tests for the indirect effects are based on the 95% bias-corrected confidence intervals.

* $p < .10$.

** $p < .05$.

*** $p < .01$.

6. Discussion

Whether to unify or discriminate prices in offline and online channels is a controversial topic in both research and practice. At the outset of this article, we showed that multichannel companies employ opposite pricing strategies across industries; approximately one-half of the companies from our in-depth interviews differentiate prices, whereas the other half unify prices across offline and online channels. Using field data on actual purchases across multiple product categories, we reveal for one large multichannel retailer that multichannel price differentiation may be possible. For the investigated retailer, the observed average offline premium consumers are willing to pay is approximately 2%. This premium is rather low compared with previously observed posted price differences ranging from 12% to 16% (e.g., Wolk & Ebling, 2010). Our finding of the existence of multichannel price differentiation also contradicts prior studies indicating price consistency across channels (e.g., Ancarani & Shankar, 2004; Pan et al., 2002).

Importantly, we found significant heterogeneity of the accepted offline price premiums depending on product, consumer segment, and purchase situation (planned vs. unplanned). Our grid search in Study 1 suggests rather *small* relative offline premiums for high-priced, high-risk products and larger offline price premiums for takeaway products; such premiums are possible likely because consumers do not engage in a price search for these products. Study 4 delivers support for this assumption: only unplanned purchases of low-priced products resulted in significant offline premiums for DVDs.

Drawing on price fairness theory, we investigate which actions companies can take to increase consumer willingness to accept different prices. In the context of our study, offering purchase advisory services or communicating price motives exerts hardly any positive effects on perceived price fairness or purchase intention offline. In our experiments, these company actions increase either perceived price fairness or purchase intention in the offline channel for some consumer segments but do not favorably affect acceptance of offline price premiums.

6.1. Research implications

This study has several implications for research. First, the results of our study have important implications for the currently sparse literature on multichannel management. Although in general the exploration of cross-channel effects remains in its infancy, most research to date has focused on the cross-channel effects of advertising (e.g., Dinner et al., 2014) and, to the best of our knowledge, neglected potential cross-channel effects of pricing. Our study contributes important cross-channel effects of offline/online pricing to the multichannel literature. Although prior researchers (e.g., Li et al., 2018) expected that online channels would lead to consistent prices between channels, we provide initial counter-evidence. Specifically, we show that, to some extent, the retailer we investigated can differentiate offline

and online prices, depending on the product and price level. Future research should investigate further cross-channel effects. For example, research could investigate whether product portfolios should differ between offline and online channels. In this regard, it might also be promising to examine whether a product's capacity for "traffic-building" depends on the type of channel.

Second, future research should explore in greater detail how consumers compare offline and online prices and how they perceive price differences between offline and online channels (e.g., [Grewal et al., 2010](#)). In the context of our study, we observe that consumer willingness to pay higher offline prices differs remarkably among segments. In this respect, it also might be fruitful to conduct in-depth interviews with consumers who accept offline premiums to better understand their motives.

Third, our observation that high- and low-priced consumer electronics give the potential for charging an offline surplus should be further explored theoretically and empirically in future research. In our study, we assumed a price fairness perspective. However, causes other than price fairness (e.g., risk arguments) likely explain why we observe consumer acceptance of offline premiums. In addition, those causes may differ for high- and low-priced products. For example, in the case of high-priced products, consumers might consider them too risky to buy online and *deliberately* accept an offline surplus for these products. This may indicate a confidence bonus for the offline channel. In the case of low-priced products, consumers appear not to focus on the price and thus *unintentionally* accept offline premiums (Study 4). Notably, consistent with risk arguments, the Indecisive and Indifferent and Offline Determined segments, both of which consider the online channel relatively insecure, only significantly lower their offline purchase intentions for a TV for relatively large price differences between the two channels (>5%). Future research should further investigate whether and under which conditions offline stores display a confidence bonus and how companies can leverage this bonus.

Fourth, our research has important implications for the literature on information flows in multichannel settings (e.g., [Verhoef et al., 2007](#)). Our regression models from Study 1 and the cluster analysis from Study 2 reveal an interesting pattern. The cluster analysis shows that most segments engage significantly in online search; however, only a few segments primarily consult the offline channel in this regard. In line with this, we observe important cross-channel effects of online prices on offline sales volume in our regression models (Study 1), while we hardly find cross-channel effects of offline prices on online sales volume. Our findings suggest that consumers consider online prices—or even a company's online shop in general—an "advertising medium" for a company's offline stores, an issue that future research can explore further.

6.2. Managerial implications

The study results have important implications for managers in the consumer electronics industry. First, for the products we investigated, the results suggest that, in general, setting and enforcing higher prices in the offline channel is difficult and contingent on the product category. Multichannel retailers may set offline premiums for typical takeaway products that usually have a low price level and which consumers purchase in an unplanned manner. Only in this category do we observe a large potential for offline premiums.

Our analyses also provide initial evidence that multichannel managers can charge offline premiums for high-priced products whose purchases consumers evaluate as risky. For example, our cluster analysis reveals that the consumer segments that display the lowest trust in online channels (Indecisive and Indifferent and Offline Determined) only lower their offline purchase intentions for rather larger price differences (>5%). In addition, we asked consumers in Study 2 to assess how secure they felt that they would receive adequate services on the purchase (e.g., when returning or repairing a product) in the offline or online channel. We found higher security levels for the offline store ($M_{\text{Offline}} = 4.66$ vs. $M_{\text{Online}} = 3.12$, $p < .001$). Thus, offline stores could try to leverage their confidence bonus.

This finding could be particularly relevant when consumers ask retailers to match the online price, which represents a common event in company practice ([Mohammed, 2017](#)). For example, the retailer in our sample matched lower online prices in approximately 8% of the cases when selling a TV, which led to an average discount rate of almost 13%. This approach is surprising because our results reveal that, particularly in this high-risk product category, offline premiums are likely feasible. Thus, instead of giving away margins for these products, employees may emphasize the advantages of the offline channel. They could rather explain that whenever problems with the products occur, customers have a contact person on-site.

Second, a frequently stated conviction from offline retailers is that the provision of purchase advisory services is a focal strength of the offline channel that can ensure their existence in the marketplace. However, our results provide initial evidence that the expected utility from employing service or communication mechanisms is low. If future investigators can replicate this finding it will be particularly critical for retailers because it indicates that offering additional services does not generally stimulate consumer acceptance of higher prices in the offline channel. Correspondingly, consumers do not indicate a willingness to pay for channel functions such as purchase advisory services offered in a retailer's offline channel.

Finally, in our experimental settings, we observe opportunities to generate value with market segmentation. We differentiate two situations. In the first case, salespeople cannot recognize a customer's segment membership. Consequently, it is not possible to derive which sales-accompanying offer the customer appreciates. In the worst case, the offer has a negative effect on the customer's purchase intention (e.g., provision of service to Product Enthusiasts). Thus, if companies cannot precisely identify the consumer segment to which the customer belongs, they should refrain from providing measures such as purchase advisory services and save the costs of hiring and training employees in this respect. In the second situation, salespeople are able to categorize customers because of, for example, frequent store visits or loyalty cards. In this case, salespeople should proactively address customers with additional offers such as service if they belong to consumer segments that value these aspects.

6.3. Limitations and future research

Although our study exhibits important strengths such as a field data set that, thus far, is unique in the multichannel literature, we need to note several limitations of our research. At the same time, these limitations offer important avenues for future research. A first limitation is that our study is based in the consumer electronics sector, which may undermine the generalizability of our findings. The failure to find support for predictions of price fairness theory may be due to the focal products we investigated in our experimental studies. Specifically, while prior investigations have found that actions such as purchase advisory services or communication of price motives positively affect buyers' attributions for price discrepancies (e.g., Maxwell, 2002), in our study neither action attenuated the negative effects of price differences on purchase intentions. Future research should investigate whether insights from offline settings generalize to the multichannel environment or whether important boundary conditions need to be considered. For example, it could be that consumers appreciate advisory services more in industries that require more in-depth product explanations (e.g., do-it-yourself industry) or whose products have more hedonic qualities and/or qualities that are difficult to evaluate online (e.g., apparel industry). Therefore, future research should replicate our study in different contexts.

In addition, we focused on consumer durables, which consumers typically buy over longer interpurchase intervals. Future research could analyze how multichannel companies should price non-durables; it is possible that consumers engage first in offline inspection and then buy the product online at a later time (Grewal et al., 2010). This might limit a company's possibility to discriminate offline and online prices.

Moreover, a frequently articulated assumption in the literature is that consumers expect online prices to be lower than offline prices (Kireyev et al., 2017). This is reasonable for various industries such as consumer electronics. However, the situation could be different for grocery retailers, which are increasingly experimenting with online channels. Grocery retailers are likely confronted with elevated logistic costs for perishable products and personnel costs for picking the respective goods. Thus, future research should indicate whether and how these companies can stimulate consumer acceptance of an online surplus.

A second limitation is that we did not consider competitor effects. Our grid search resulted in best prices for the offline and online channels of one large multichannel retailer. However, we did not consider competitor prices. For example, price dispersion in the market may influence consumers' price search and thus affect the possibility of offline premiums. Thus, future research should incorporate competitor effects. Similarly, future research should also investigate whether multichannel retailers can charge higher prices in their online channels, as compared with pure players. For example, many multichannel retailers allow consumers to pick up and return products in their offline stores, which may represent a service for which customers are willing to pay.

A third limitation is that we did not consider consumer segments in our field study. Although our experimental research results suggest segment effects (Study 2), we were unable to analyze these effects because the multichannel company has only sparse access to customer information. Future research should incorporate consumer heterogeneity. For example, for price unconscious consumers even larger offline price premiums seem possible.

A fourth limitation is that we conducted our research during a macro-economic expansion phase. Deleersnyder, Dekimpe, Sarvary, and Parker (2004) demonstrate that consumer durables are sensitive to business-cycle fluctuations, which can stem from, for example, consumers' price sensitivity during recession phases. Thus, future research could investigate the possibility of offline premiums during different macro-economic development stages.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ijresmar.2019.01.006>.

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