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Channel-based price differentiation – Literature review and empirical consumer research

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List of abbreviations

B2C	Business-to-consumer
CEO	Chief Executive Officer
cf.	Confer (compare)
df	Degrees of freedom
Dr.	Doktor
Dr. rer. pol.	Doktor rerum politicarum
e.g.	Exempli gratia (for example)
etc.	Et cetera (and so on)
F	F-value
i.e.	Id est (for example)
IJBR	International Journal of Business Research
JRCS	Journal of Retailing and Consumer Services
M	Mean
MC	Marginal costs
MANCOVA	Multivariate analysis of covariance
MR	Marginal revenue
p.	Page
PD	Price difference
Prof.	Professor
SD	Standard deviation
U.S.	United States

List of symbols

€	Euro
E	Error term
H	Hypothesis
N	Number of observations
R^2	Coefficient of determination
P	p-value
α	Cronbach's Alpha
X^2	Chi-square value
%	Percent

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1 Introduction

1.1 Background

Multi-channel retailing has become a popular business model (Wind and Mahajan, 2002). With the growing importance of the Internet as a sales channel, many retailers started to expand their businesses through online shops and turned themselves into multi-channel retailers (Zettelmeyer, 2000). Today, almost all top consumer goods retailers in the United States operate both conventional retail stores and an online shop (Zhang, 2009); the same applies to large retailers across European countries. With price being the most important marketing instrument for retailers (Ahlert and Kenning, 2007), the question how to price products across the different channels became a crucial question for multi-channel retailers. In concrete, the most challenging issue for multi-channel retailers is to decide whether to price their products at parity across channels or to sell the same product at different prices in each channel. The fact that multi-channel retailers are in general not able to compete with online-only retailers' prices due to the higher costs they face through their offline outlets makes it difficult for multi-channel retailers to compete in the online market if they charge identical prices in their online shop as in their conventional stores. Price differentiation seems therefore a practical solution. Price differentiation in general is acknowledged as a highly profitable pricing strategy as it allows segmenting customers according to their willingness to pay by charging different prices for the same or similar products (Phlips, 1981). Therefore, most theorists acknowledge channel-based price differentiation as an opportunity to increase profits for retailers (e.g., Yoo and Lee, 2011; Zhang et al., 2010; Yan, 2008; Zettelmeyer, 2000). Managers of multi-channel companies on the other hand have long been arguing against channel-based price differentiation but for price parity across channels, as they fear negative reactions from consumers due to price differentiation (e.g. Pan, Ratchford and Shankar, 2004, Neslin et al., 2006). Consumers usually have a negative perception towards

practices of price discrimination (e.g. Darke and Dahl, 2003; Haws and Bearden, 2006). In addition, the Internet makes it very easy for consumers to compare prices across different sellers. Through new technologies such as online price search engines and price comparison Apps on smartphones, comparing prices across a wide range of sellers became easily possible for consumers almost without any effort. As a result, prices became highly transparent to consumers, which increased price sensitivity and made them extensively compare prices before purchasing a product. Recent empirical studies on retailers' pricing behavior across channels show conflicting results (Homburg, Lauer and Vomberg, 2014). While some reveal similar prices between multi-channel retailers' online and offline channels (Flores and Sun, 2014), others indicate that up to 60 percent of multi-channel retailers engage in channel-based price differentiation and that this trend is increasing (Wolk and Ebling, 2010). As a consequence, discussions among experts remain heated. While some persist that "...prices should be the same no matter which retail channels a consumer uses: stores, the Web, or catalogs" (Jeffrey Helbling, McKinsey, 2011), others argue that "The reality is that for most products stores are a more costly channel than online, and retailers cannot be competitive in both if this is not reflected in pricing." (Michael Jary, OC&C Strategy Consultants, 2011) or that "Companies must be able to differentiate the attributes of the offering (products, services, prices and content) for the different channels..." (Gregor Harter, Booz Allen Hamilton, 2011). Managers of multi-channel companies are highly interested in better understanding how to price products across different channels (see also Ancarani and Shankar, 2004). Starting this dissertation we conducted several interviews with highly acknowledged experts from the consumer industry, retailing and consulting who further approved that the topic of cross-channel pricing is highly relevant and that more insights are necessary for managers to make better pricing decisions.

But how is the status quo of research about multi-channel pricing strategies in retailing? Which studies have been published and what findings have been reported? How can these findings be consolidated, what are the managerial implications and what are important avenues for future research to provide managers with a more solid basis for their pricing decision? Furthermore, how do consumers perceive different cross-channel pricing strategies and how do they react in an encounter with channel-based price differentiation? What are the cognitive effects behind consumers' reactions and which factors influence negative behavior towards channel-based price differences? Are different pricing strategies optimal for different product categories? Finally, are there ways for multi-channel retailers to avoid negative consumer perception? These questions are of high relevance for multi-channel retailers.

Despite the high relevance of the question whether to differentiate prices across sales channels or not, the topic has not been sufficiently discussed in the academic research so far and most of the questions addressed above are still not answered adequately. Price discrimination has been extensively discussed in marketing and economics literature across various contexts (e.g., Elmaghraby and Keskinocak, 2003; Wu et al., 2012), but a comprehensive examination of channel-based price discrimination is still missing. To summarize, it is of high relevance for managers and academics to better understand cross-channel pricing strategies and the mechanisms behind.

1.2 Research questions and outline

The goal of this dissertation is therefore to fill this gap in the academic literature and study the question whether multi-channel retailers should charge uniform prices across their channels or differentiate prices between their conventional stores and online shop. Therefore, this dissertation provides a literature review on cross-channel pricing, outlines avenues for

future research and explores channel-based price differentiation from a consumer's perspective.

This dissertation contains two single studies, which are presented in chapters 3 and 4. Each study corresponds to a self-contained article manuscript.

Before reporting the two studies, chapter 2 gives an introduction to price discrimination. It provides an overview of the definitions of price discrimination and describes the mechanisms behind successful implementation of price discrimination. Furthermore, the goals of price discrimination as well as its different types and forms of implementation are presented. Based on the distinction between first, second and third degree price discrimination, channel-based price discrimination is classified.

The third chapter of this dissertation is based on Fassnacht and Unterhuber (2015a). The article has been published in the International Journal of Business Research (IJBR). It is the first paper to provide a comprehensive review of the literature on cross-channel pricing issues and outlines an extensive agenda for future research. In particular, to fill the current gap in research, we review three different streams of research: Theoretical research assessing the possibilities of different cross-channel pricing strategies for multi-channel retailers, observational research investigating how retailers deal with prices across conventional stores and online shops today and empirical research exploring consumer behavior in an encounter with channel-based price differentiation. Following the literature review, we provide an in depth agenda for future research. For each of the research streams mentioned above we develop concrete avenues, necessary to be investigated to enhance current understanding of multi-channel pricing. Due to the high need, we extensively discuss avenues for future empirical research. We present a wide list of factors considered to influence consumers' acceptance of different cross-channel pricing strategies and in need for further investigation,

such as the “direction of the price difference”, the “size of the price difference”, “transaction similarity”, “product category”, the “motive behind the retailer’s pricing”, “norm perception” or “metaknowledge of the market place”. We discuss each of the factors identified and work out concrete variables of high value for future investigation. We therefore formulate the following research question for chapter 3:

What is the state of research on pricing in the context of online and offline channels? What is the current understanding of uniform pricing versus channel-based price differentiation? Which directions for future research can be derived? Which concrete elements should future research address to enhance understanding of consumer behavior towards different cross-channel pricing strategies?

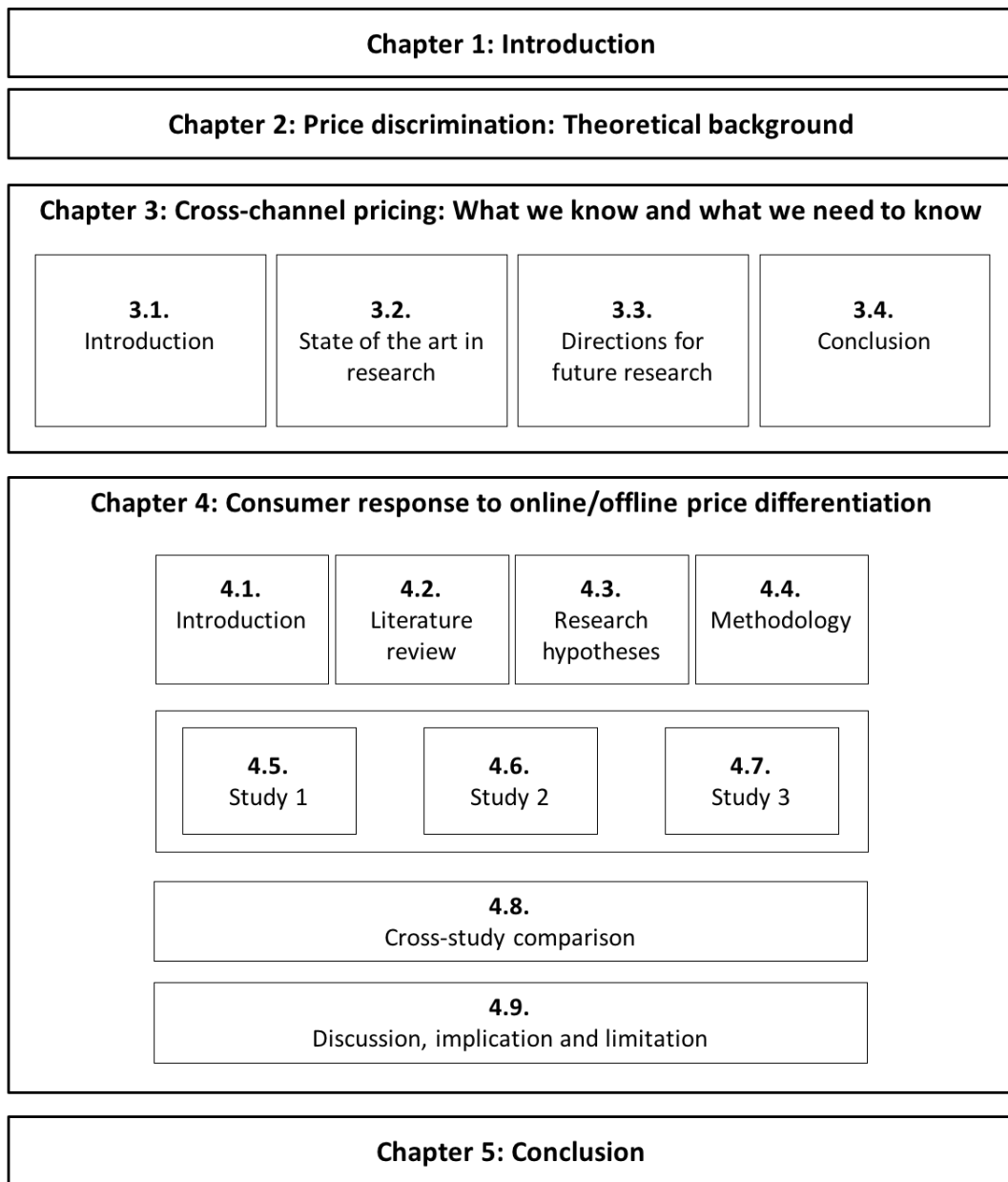
The research in chapter 4 is based on a manuscript of Fassnacht and Unterhuber (2015b), accepted for publication at the Journal of Retailing and Consumer Services (JRCS). On the basis of the review of literature and the avenues for future research developed in chapter 3, we present three experimental studies investigating channel-based price differentiation from the consumer’s point of view. On the basis of relevant theories four hypotheses were worked out and explored in laboratory experiments with altogether 980 participants. Building on each other, the experiments examine perception of price fairness across channels, consequences of these perceptions and the cognitive effects behind. In concrete, the experiments investigate the influence of various factors on consumer fairness, purchase intention and intention to word-of-mouth (WOM) in an encounter with channel-based price differentiation. By this means we study factors such as the direction of the price difference, the size of the price difference and product category. Furthermore, we examine the mechanisms behind consumers’ behavior in an encounter with channel-based price differentiation. In concrete, we study how implicit assumptions consumers make about the

costs of a good to the seller in the different channels influence their acceptance of different pricing strategies. Furthermore, we investigate how multi-channel retailers can avoid negative consumer behavior towards channel-based price discrimination by studying whether an explanation of the price difference can help foster consumer acceptance. Finally, we discuss the drawbacks of our research and method and derive implications for academic research and managerial practice. The research questions can be summarized as follows:

Does consumers' acceptance of channel-based price differentiation depend on the direction of the price difference, the size of the price difference and product category? How do consumers' implicit assumptions on the costs of a good to the seller in the different channels influence their perception of and reaction to channel-based price differentiation? Can an explanation of the price difference help foster consumer acceptance and prevent negative consumer reactions?

In chapter 5, we provide a summary and conclusion of the main findings of our theoretical and empirical research. Figure 1 provides an overview of the structure of this dissertation project.

Figure 1: Overview of the research project



2 Price discrimination: Theoretical background

Before further investigating whether price discrimination might be a valuable solution to the pricing dilemma multi-channel companies face, the basics of price discrimination need to be clarified. This chapter introduces the theoretical background of price discrimination. It provides an overview of the definitions of price discrimination, describes the prerequisites for successful implementation and explains its goals as well as its different types and implementation forms, illustrated with reference to Simon and Fassnacht (2009). Finally, we discuss channel-based price differentiation and classify it.

2.1 Basis of price discrimination

Price discrimination in general has always been a highly interesting topic in the marketing and economics literature and has been extensively discussed in recent years (e.g., Elmaghraby and Keskinocak, 2003; Wu et al., 2012). The purpose of price discrimination is to segment customers according to their willingness to pay by charging different prices for the same or similar products (Phlips, 1981).

The basis for price differentiation is therefore market segmentation. Segmentation thereby means dividing consumers into different groups that differ among criteria that are relevant for price management, such as willingness-to-pay, income, preferences, purchase behavior etc. (Simon and Fassnacht, 2009). Segmentation for pricing purposes involves two different tasks, the identification of the market segments and segment-specific marketing.

The identification of the market segments includes the definition of segmentation criteria, the definition of the segments on the basis of these criteria and the operationalization of the segments. One thereby differentiates between segmentation criteria related to the buyer's person and those related to the buyer's purchase behavior. Segmentation criteria related to the buyer's person are demographic criteria such as gender, age or household size,

socio-economic criteria such as income, education or occupation and psychographic criteria such as way of life or other characteristics of one's personality. On the other hand, purchasing characteristics such as whether someone is already a buyer or whether someone is a frequent user, behavior towards prices such as price elasticity, willingness to pay, price sensitivity and price knowledge and behavior with regards to other marketing instruments belong to segmentation criteria related to purchase behavior. Thereby, the challenge of market segmentation lies in the fact that only the criteria related to purchase behavior are immediately relevant for segmentation, but those criteria are usually difficult to observe and therefore segments built on these criteria are difficult to address. Segmentation criteria related to the buyer's person on the other hand are more easily observable and thus segments built on these criteria can be more easily addressed. However, it is often unclear whether and how they relate to consumers' purchase behavior. To overcome this problem, Simon and Fassnacht (2009) suggest proceeding in several steps. By this means, segments should be described on the basis of criteria related to purchase behavior first. Then the relation of those criteria to the more general characteristics referring to the buyer's person is measured and finally the segments are redefined on the basis of the criteria related to the buyer's person, which correlate strongly with those criteria related to purchase behavior.

Segment-specific marketing means defining and implementing strategies tailored to the different segments. In the case of price discrimination this includes defining the optimal price for each segment. Effectively fencing off the segments from each other plays thereby an important role to successfully implementing price discrimination.

2.2 Definition of price discrimination

Before explaining the different types of price discrimination, this chapter provides an overview on the definitions of price discrimination available in the literature and describes which definition is relevant to the multi-channel context and the discussion in this work.

Fassnacht (1996) provides an overview of the definitions of price discrimination available in the literature and finds that there is no consistent definition. However, research distinguishes between a narrow and a broad definition of price discrimination. The narrow definition understands price discrimination as a state where different prices are charged for products that are identical with regards to place, time, performance and quantity (e.g. Ellinghaus 1964, Fehl 1981, Ott 1979). Fassnacht (1996) provides a broader definition of price discrimination. The author says that price discrimination is in place:

- If a seller offers products that are identical with regards to the spatial, temporal, performance and quantity related dimensions at different prices or
- If a seller offers versions of the product that differ at least in one of the four dimensions without causing a new product, at different prices.

Compared to the narrow definition of price differentiation, the broader definition considers it still price discrimination if different versions of a product are priced differently. The definition includes product versions because it assumes that they are to a large degree substitutes. The fact that the definition says that a new product may not be built through variation however shows the subjective component of this definition. Consumers are the ones to judge whether a new product is built with variation or not.

This paper is based on the broader definition of price discrimination. Although this paper considers channel-based price differentiation for identical physical goods, the fact that the products are sold through different channels makes them differ in various dimensions. Even if the product by itself is identical with regard to its performance etc., no matter in which channel a consumer purchases it, the difference in the transaction can make them be considered as different versions of the same product. For example, while the “offline version” is immediately available but needs pick up in a store, the “online version” is more convenient

but requires some time for delivery to be finally at the consumer's for usage. These differences in the transactions may make consumers perceive the physically identical products as different versions without a new product being created. Therefore, this work follows the broad definition of price discrimination.

2.3 Goals of price discrimination

According to Simon and Fassnacht (2009) price discrimination can have three different types of goals: Customer-related goals, business goals and competitive goals.

Customer-related goals aim at increasing customer satisfaction and customer loyalty (cf. Fassnacht and Winkelmann, 2006). This can for example be realized by differing prices according to quantity purchased or according to the customer relationship stage. Competition-related goals can be reactive or proactive. Reactive means adjusting prices according to those of competitors, which can be observed if consumers strongly compare prices across different sellers. Proactive price measures on the other hand follow the aim of establishing barriers for consumers to change suppliers or barriers for new competitors to enter the market. But price differentiation may also have the incentive to evade the competition and to occupy price niches.

The main goal of price differentiation however is the intention to increase profit. This can be realized by extracting differences in consumers' willingness-to-pay. Figure 2 shows profit effects of price differentiation versus uniform pricing for a single price and assuming a monopolistic situation, constant marginal cost, no costs due to the price differentiation and a linear price-response function.

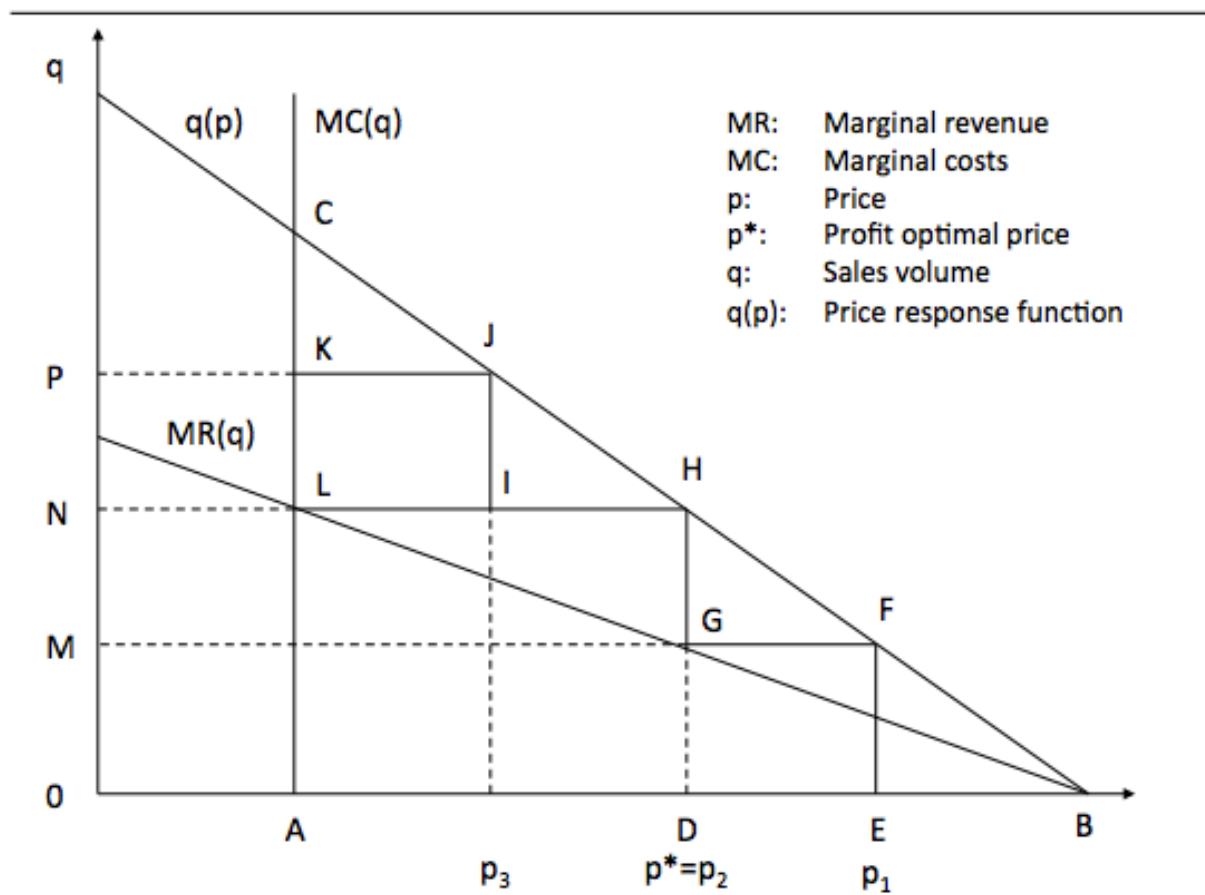
The overall profit potential is represented by the triangle ABC. In case of uniform pricing the optimal price p^* is where marginal revenue hits marginal costs. The seller then makes a profit that matches the size of the rectangle ADHL while the consumer surplus

corresponds to the triangle DBH. In the case of price differentiation with prices p_1 , p_2 and p_3 the seller can earn additional profits of the size of the rectangles DEFG and LIJK. This additional profit comes from the reduction of the consumer surplus to the triangles IHJ, GFH and EBF.

According to Fassnacht (1996) the following two effects can explain the additional profits through price differentiation compared to uniform pricing:

- By increasing the uniform price p^* to p_1 , quantity MN will still be purchased for price p^* while additional quantity OM will be purchased for price p_1 . This allows to extract some consumers' higher willingness-to-pay.
- By reducing the uniform price p^* to p_3 , the additional quantity NP can be sold through attracting additional customers that would not have been willing to buy at a price as high as p^* .

Figure 2: Uniform pricing and classic price discrimination



Source: Fassnacht (1996), p. 31

2.4 Types of price discrimination and implementation forms

Pigou (1960) describes three different types of price discrimination depending on their ability to extract consumer surplus.

First-degree price discrimination, also named perfect price discrimination, refers to the practice of charging each consumer individually the maximum price this consumer is willing to pay. If this is not possible or involves disproportionate expenditure, the seller may divide its customers into different segments and charge prices according to the different maximum willingness-to-pay in these segments. Pigou (1960) calls this second-degree price discrimination. With second-degree price discrimination consumers still decide themselves which segment they belong to and implementation is quite easy because no control

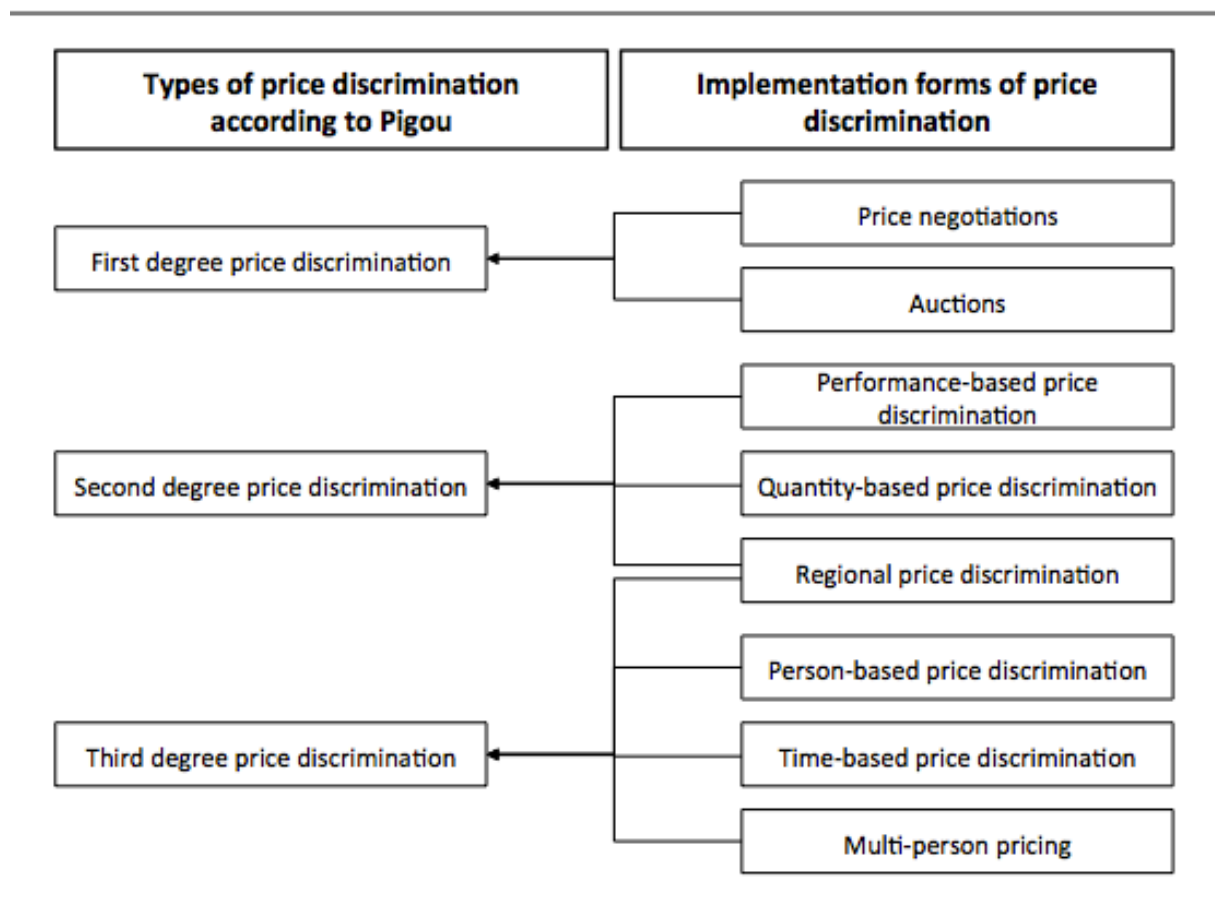
mechanisms are required. The challenge is to define optimal price-value packages for the different segments. In third-degree price differentiation the segments are built on the basis of criteria that can be observed and individually addressed by different prices. Examples are special fees for students or elderly people. For consumers it is generally not possible to change between the different segments because access is restricted on the basis of the criteria defined.

In the business world we find the different types of price discrimination implemented in different forms. Figure 2 provides an overview of the types of price discrimination and their most common implementation forms. Price negotiations and auctions for example are practices of first-degree price discrimination. Each price negotiation can end with a different price and if well negotiated, the seller can achieve the highest price the buyer is willing to pay. The outcome of an auction is the maximum price or probably close to the maximum price the last bidder in the auction is willing to pay. If a product is sold several times, the price in each auction is its individual maximum and depending on the bidders participating in the auction.

With second-degree price discrimination, customers self-select the segment they would like to play in. The two main implementation forms of second-degree price discrimination are performance-based and quantity-based price discrimination. Using performance-based price discrimination a seller charges different prices for versions of a product that differ in their performance but are identical in spatial, temporal and quantity-related dimensions (Fassnacht, 1996). Most prominent examples are different versions of credit cards such as the American Express Gold, Platinum and Centurion Card or different airline tickets such as Economy, Business and First Class. Thereby, sellers offer basically identical products but different service levels (e.g. additional insurance service in the Amex Platinum Card that does not

exist in the Gold Card or a served meal provided in the Business but not the Economy Class of an airline) at different prices (Mahadevan, 2009). The most important success criterion of performance-based price discrimination is that consumers realize the performance difference and that they are willing to pay a higher price for the higher performance. Most often performance-based price discrimination comes along with a differentiation of the distribution channel (Simon and Fassnacht, 2009). Airline tickets for example are usually more expensive when buying from a travel agency than buying online.

Figure 3: Types of price discrimination and implementation forms



Source: Simon and Fassnacht (2009), p. 264

Compared to performance-based price discrimination sellers employing quantity-based price discrimination charge different per unit prices for products depending on the amount purchased. The most popular form is quantity discounts – the more a consumer purchases of

a product the lower the unit price gets. For example, if you buy add-on data packages from telecommunication companies to use the Internet on your smartphone you usually pay a lower price per gigabyte if you buy a larger package including more gigabytes than if you buy a smaller package including less gigabytes. Compared to performance-based price discrimination it is assumed that the products are identical with regards to spatial, temporal and performance-related dimensions (Fassnacht, 1996). The basis for quantity-based price discrimination is Gossen's Law saying that the marginal utility of a product declines with increasing amount of the product (Gossen, 1854).

Third-degree price discrimination does not allow consumers to self-select into one of the segments but the seller pre-selects them into the segments by defining clear segmentation criteria that aim to address differences in willingness-to-pay (Simon and Fassnacht, 2009). Third-degree price discrimination can be implemented in four different forms: Person-based price discrimination, time-based price discrimination, multi-person-pricing and regional price discrimination.

If a seller implements person-based price discrimination, he/she differentiates prices according to criteria related to the buyers's person. These criteria can be socio-demographics or criteria related to purchase behavior. Prominent examples for price discrimination according to socio-demographics are differentiation according to age (reduced prices for children or senior people) or income (lower prices for students). Loyalty discounts or price differentiations according to the amount of a product purchased are possibilities to implement price differentiation according to purchase behavior.

As the name already says, with time-based price discrimination a seller charges different prices depending on the time of purchase. Again the products are assumed to be identical with regards to the other dimensions. Popular ways of implementing time-based

price discrimination are to charge different prices depending on daytime (telephone or electricity), week days (museum entrance tickets or train tickets) or season (airline tickets or hotel prices). Companies also use time-based price discrimination to manage their capacities (Simon and Fassnacht, 2009). Therefore, in case of high demand product prices are increased to provide a more balanced utilization of capacity (cf. Skiera and Spann, 1998). On the other hand, buyers purchasing in times of lower demand receive a lower price.

Companies may also offer a discount for groups of customers. For example may a travel operator give a discount for couples travelling compared to a single person. Similarly, a sightseeing bus tour may become cheaper per person if a group ticket is purchased. Wilger (2004) describes three different forms of multi-person pricing. As multi-person pricing is not a focus of this research we will not go into more detail at this point.

Regional price discrimination refers to the practice of charging different prices in different regions for the same product. It can be attributed to second as well as third degree price discrimination. If arbitrage costs for consumers are higher as the price difference between the regions the price discrimination can be considered as successful third degree price discrimination (cf. Tacke, 1989). On the other hand, in case of low arbitrage costs consumers can choose where to buy the product, which implies a form of second degree price discrimination.

This chapter gave an overview of the different types of price discrimination and their implementation forms to provide the basis for classifying and discussing channel-based price differentiation in the following. For a more detailed view on the theory of price discrimination please consider Simon and Fassnacht (2009), Fassnacht (1996) and Pigou (1960).

2.5 Channel-based price differentiation

After an introduction to price discrimination in general, this chapter introduces and classifies channel-based price differentiation within the theoretical context.

The importance of price discrimination for retailers has increased in recent years as technological developments have made it possible to set prices in ever more sophisticated ways (Grewal and Compeau, 1999). Especially the trend towards online retailing brought further opportunities for retailers to segment customers for price discrimination. Permanent price differentiation across sales channels is one of these opportunities increasingly gaining consideration in the marketing literature. The aim of channel-based price differentiation is that retailers can increase profits by setting different prices for the same product in the offline and online channel and allowing consumers to self-select their preferred channel-price combination (Wolk and Ebling, 2010). The success of channel-based price differentiation therefore depends on differences in consumers' willingness-to-pay when shopping online compared to when shopping at a conventional retail store. As discussed earlier, one needs to assume a broader definition of price discrimination when discussing channel-based price differentiation. Although the products sold are identical with regards to their composition, the fact that the products are sold through different channels makes them differ in – for the consumer potentially important – dimensions. There are in fact differences in the transactions, which can make consumers consider the products as different versions. As already said, while the “offline version” is immediately available but needs to be picked up from the shop, the “online version” is more convenient but requires some time for delivery. The different channels are therefore likely to address different consumer segments, which might justify multi-channel retailers to charge different prices online than offline.

The fact that consumers can self-select their preferred channel-price combination makes channel-based price differentiation a form of second-degree price discrimination. And

within second-degree price discrimination channel-based price differentiation is a form of performance-based price discrimination. As mentioned earlier, performance-based price discrimination often goes along with a differentiation of distribution channels (Simon and Fassnacht, 2009). In case of channel-based price differentiation the peculiarities of the different channels constitute the difference in performance depending on whether you buy in an online shop compared to buying at a conventional retail store. Whether and how these performance differences between the two channels influence consumers' acceptance of channel-based price differences and thus allow retailers to charge different prices in the channels is a questions still to be answered.

Besides increasing profits by exploiting the difference in willingness-to-pay between the online segment and the offline segment, channel-based price differentiation follows important competition-related goals. To be competitive against online-only retailers, for example in rankings of price search engines, setting a lower price in the online channel than in the offline channel can be beneficial for multi-channel retailers without risking a potential higher price potential in the offline channel.

3 Theoretical research: Cross-channel pricing: What we know and what we need to know¹

3.1 Introduction

3.1.1 Background and relevance of topic

With the growing importance of the Internet as a sales channel, many retailers started to expand their businesses through online shops and become multi-channel retailers (Zettelmeyer, 2000). “The term multichannel retailing is increasingly used to refer to the practice of retailers using both traditional bricks-and-mortar retail stores and the Internet to sell merchandise [...]” (Zhang, 2009, p. 1080). Today, almost all top retailers in the United States operate both conventional retail stores and an online shop (Zhang, 2009). The same applies to large retailers across European countries. As a consequence, with price being the most important marketing instrument for retailers (Ahlert and Kenning, 2007), pricing in the context of online and offline channels became one of the most important issues for retailers (Sotgiu and Ancarani, 2004).

When thinking about pricing, the most challenging issue for multi-channel retailers is to decide whether to price their products at parity across channels or to sell the same product at different prices in each channel. Price differentiation in general is acknowledged as a highly profitable pricing strategy as it allows segmenting customers according to their willingness to pay by charging different prices for the same or similar products (Phlips, 1981). Managers of multi-channel companies however have long been arguing against channel-based price differentiation but for price parity across channels, as they fear negative reactions from consumers due to price differentiation (e.g. Pan, Ratchford and Shankar, 2004, Neslin et al., 2006). Recent technological innovations such as barcode scanners and price comparison Apps for smartphones further increased price transparency and thus made the

¹ Based on an article by Fassnacht and Unterhuber (2015) published in the International Journal of Business Research (IJBR)

decision whether to differentiate prices across channels even more critical. Discussions among experts remain heated. While some argue that "...prices should be the same no matter which retail channels a consumer uses: stores, the Web, or catalogs" (Jeffrey Helbling, McKinsey, 2011) or "The reality is that for most products stores are a more costly channel than online, and retailers cannot be competitive in both if this is not reflected in pricing." (Michael Jary, OC&C Strategy Consultants, 2011), others persist that "Companies must be able to differentiate the attributes of the offering (products, services, prices and content) for the different channels..." (Gregor Harter, Booz Allen Hamilton, 2011).

To summarize, multi-channel pricing is a relevant issue for retailers operating a conventional retail store and an online shop and managers are lacking the basis for making profound decisions. The decision on whether to differentiate prices across channels is currently mainly based on gut feeling and reasoning on the basis of anticipated consumer behavior. To provide managers with a more solid basis for their decisions, research is warranted.

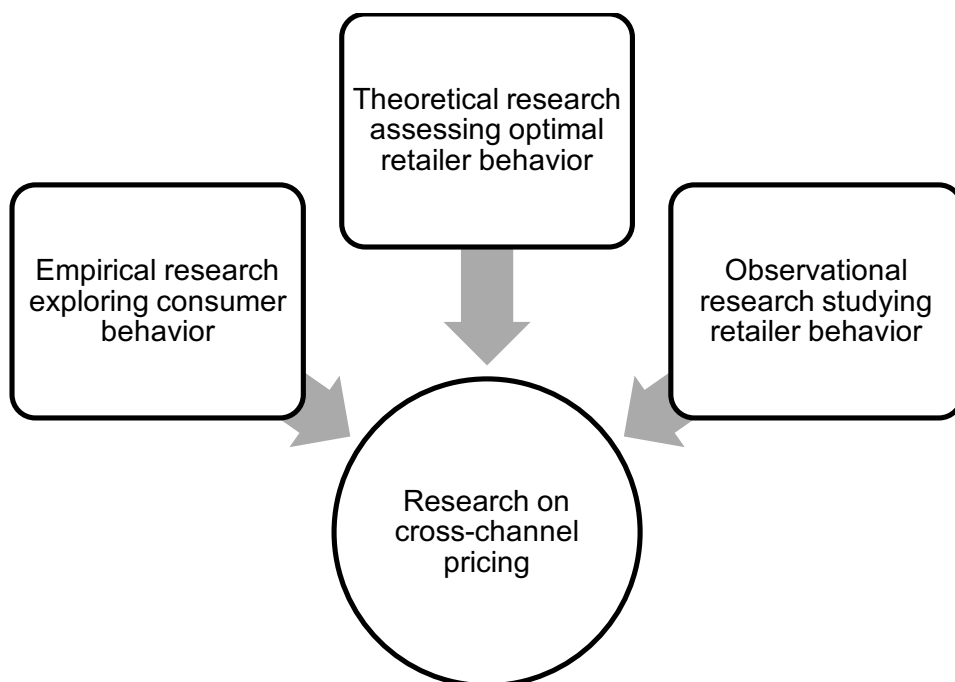
3.1.2 Objectives and structure of the paper

The high relevance of the issue how to price across different channels, i.e. whether to engage in channel-based price differentiation or not, for managers of multi-channel companies indicates that it is necessary to point out the state-of-the-art in research and to identify potential and directions for future research. The objective of this article is to comprehensively review the existing literature dealing with the issue of cross-channel pricing, to summarize and illustrate important findings and to display knowledge gaps and provide an outline for future research. The aim is to work out avenues for future research with direct managerial implications for multi-channel retailers that improve the basis of their decision-making.

To the best of our knowledge, we are the first to provide an extensive overview on the literature on cross-channel pricing including precise directions for future research. The literature base for our article is built on relevant theoretical and empirical papers on cross-channel pricing. The papers were identified via systematic key word search (multichannel, retailing, pricing, price differentiation) in the databases ABI Inform Global, EBSCO, JSTOR and Science Direct until February 2015. Furthermore, the references of the identified articles were screened and valuable articles included in the review.

To support managers in their decision on whether or not to engage in channel-based price differentiation, scientists have studied consumer behavior towards different cross-channel pricing strategies and theoretically assessed which pricing strategy is optimal under certain conditions and how multi-channel retailers deal with cross-channel pricing today (Figure 4). In the following, we will provide insights from all three streams of literature in detail.

Figure 4: Systematization of scientific literature on cross-channel pricing



3.2 State of the art in research on cross-channel pricing

3.2.1 Empirical research exploring consumer behavior

Insights on cross-channel pricing from the consumer perspective are particularly important for retailers when making pricing decisions. Research on consumer behavior empirically explores how consumers perceive and react to different cross-channel price strategies, i.e. uniform pricing versus channel-based price differentiation. Because theoretical work acknowledges the possibility to differentiate prices across a multi-channel retailer's online and offline channels (see next chapter), high importance lies in finding out whether consumers accept channel-based price differentiation and how it is perceived compared to uniform pricing. To shed light on these issues, we reviewed the empirical literature on consumer behavior. The studies we identified will be discussed in detail in the following. Table 1 summarizes the most important findings.

Gruber (2008) developed a stochastic model in a duopoly market to represent consumer behavior in a multi-channel environment, which was used to derive recommendations for pricing products across the different channels. The model contains two probability functions, which provide reservation prices for each individual channel. Additionally, the model is based on several distributions, which represent likelihoods for switching from and to each of the different channels. The distribution functions are estimated from the results of a consumer survey. The findings reveal differences with regard to the success of different pricing strategies across three product categories books, clothes and digital cameras. These variances emerge from differences in consumers' channel perception and channel preference and therefore reservation prices. While the offline channel is the preferred channel for clothes, the online channel is the channel of choice for digital cameras. For books, results were not as distinct, but there is a tendency of consumers preferring to buy especially high-priced books in a store. As a result, consumers shopping clothes should be drawn to the offline channel by

undercutting competitors' online prices according to the author. For digital cameras the optimal pricing strategy would be exactly the opposite i.e. offline customers should be directed towards the online channel. The author's contribution to the issue of cross-channel pricing is thus mainly the acknowledgment and strategic assessment of different product categories regarding multi-channel pricing decisions. It points at the importance of the type of product, and derives strong directions for pricing strategies using an elaborate stochastic model. However, the author did not directly address the issue of channel-based price differentiation. Reservation prices when shopping online and offline were assessed independently from each other in an online survey and consumers were not confronted with the scenario that one retailer may charge different prices in its online shop than in its conventional retail store. As a result, insights on consumers' perception of and reaction to uniform pricing versus channel-based price differentiation are not provided.

In an innovative study, Choi and Mattila (2009) studied the effect of uniform versus differential pricing strategies in three channels (direct selling, selling via channel intermediaries, and the Internet) on fairness perception among consumers in the hotel industry. In a 2 (uniform versus differential multichannel pricing strategy) \times 3 (positive, neutral, and negative price frame) \times 2 (high versus low norm perception) factorial between-subject experimental design the authors investigated the moderating role of price frame (relative positioning of prices in the marketplace) and norm perception (perception of channel-based price differentiation as a norm). Their findings show that when norm perceptions are low, i.e. differentiated price are not perceived to be the norm, the multi-channel pricing strategy can significantly affect fairness perception. Uniform pricing across the channels (operationalized as direct booking at the hotel via telephone or email, the hotel's website and a travel agency's website) resulted in significantly higher fairness perception in all three price frames than price differentiation, which was generally considered unfair. On

the other hand, when norm perceptions were high, the effect of the pricing strategy on fairness perception was dependent on the price frame. There was no effect of multi-channel pricing strategy on price fairness in the case of a positive price frame, i.e. when the price was low compared to similar offers. However, when the price frame was neutral or negative, channel-price integrity resulted in significantly higher price fairness perception than price differentiation. The authors are the first to directly confront consumers with channel-based price differentiation versus uniform pricing compared to Gruber (2008) asking independently for reservation prices in the channels. Though providing important insights by choosing fairness perception as the dependent variable, it remains a question for further research how fairness perception relates to actual purchasing behavior or other behavioral consumer variables. The implicit assumption of higher purchase likelihood and actual purchase behavior going along with higher fairness perception needs empirical confirmation. While Campbell (1999) found fairness perception to be related to purchase intention, the link to actual behavior is yet to be made. Do customers who notice the strategy and perceive it as unfair buy somewhere else, and/or spread negative word about the retailer to their peers, and/or buy nonetheless, to name a few examples?

Taking the research scenario one step further, Choi, Mattila, Park and Kang (2009) studied the effect of multi-channel pricing strategies (channel-price integrity vs. price differentiation) on customers' ethicality evaluations and purchase intention in the hotel industry, by also focusing on the moderating role of price frame. Results from a 2 (price strategy: channel-price integrity vs. price differentiation) x 3 (price frame: undercutting, neutral, and skimming) factorial between subject experimental design revealed that consumers did not evaluate the price differentiation

Table 1: Overview on empirical research exploring consumer behavior

Reference	Basis of research	Type of study (industry)	Variables tested	Key results
Gruber (2008)	Stochastic model	Consumer survey (book, consumer electronics, fashion)	<ul style="list-style-type: none"> • Product category (book, digital camera, clothes) • Channel preference 	<ul style="list-style-type: none"> • Drive consumers to offline channel for clothes • Drive consumers to online channel for digital cameras
Choi and Mattila (2009)	Conceptual model	Experimental study (hotel)	<ul style="list-style-type: none"> • Pricing strategy (uniform, differential) • Price frame (positive, neutral, negative) • Norm perception (low, high) • Price fairness 	<ul style="list-style-type: none"> • If not considered a norm, price differentiation is less fair than uniform pricing • If considered a norm, fairness of price differentiation depends on price frame
Choi, Mattila, Park and Kang (2009)	Conceptual model	Experimental study (hotel)	<ul style="list-style-type: none"> • Pricing strategy (uniform, differential) • Price frame (undercutting, neutral, skimming) • Ethicality evaluations • Purchase intention 	<ul style="list-style-type: none"> • No effect of price differentiation if prices are lower or equal to the uniform pricing condition • This changes if at least one of the prices in the case of price differentiation is higher
Paul and Beckmann (2012)	Conceptual model	Experimental study (mobile communication)	<ul style="list-style-type: none"> • Price instrument (online discount, online promotion, online clearance, service fee) • Customer perception (value, unfairness, self-determination) • Customer retention (relationship quality, repurchase intention) 	<ul style="list-style-type: none"> • Positive effect from price differentiation on customer retention through perceived value • Negative effect on retention through price unfairness perception and limited self-determination
Fassnacht and Unterhuber (2015b)	Conceptual model based on concept of price fairness	Three experimental studies (fashion, consumer electronics, furnishing)	<ul style="list-style-type: none"> • Product category • Size of price difference • Cost cue • Explanation of price difference • Price fairness • Word-of-mouth intention • Purchase intention 	<ul style="list-style-type: none"> • Price differentiation with higher online price is perceived unfair • Product category and size of the price difference influence reactions • Costs to the seller play a role during fairness evaluations • Communication helps to foster acceptance
Unni, Tseng and Pillai (2010)	Conceptual model	Quasi-field experimental study (consumer electronics, vitamins)	<ul style="list-style-type: none"> • Price sources in online and offline shopping contexts 	<ul style="list-style-type: none"> • Multi-channel retailers may not need to aim for price parity across channels

strategy as significantly less ethical than uniform pricing and were more likely to purchase from a company differentiating prices across channels when prices of the differentiation policy were all lower than or equal to the uniform price of the parity policy. However, when at least one of the prices in the case of price differentiation was higher than the integrated price in the price parity policy, consumers perceived the differentiation policy as less ethical and were more likely to purchase from a company with consistent prices across channels. Going one step further than Choi and Mattila (2009) this research measures consumer reaction in the form of purchase intention. However, it is worth noting that although purchase intention can be regarded as a strong indicator of purchase behavior, purchase intention in this study was operationalized as self-reported likelihood to make a hotel reservation via a specific channel. An empirical investigation of actual purchase behavior would add significantly to this stream of research.

Paul and Beckmann (2012) developed a conceptual model identifying four different price instruments for realizing channel-based price differentiation (online discount, online promotion, online clearance, service fee) and empirically tested the effects of these instruments on customer perception and retention outcomes. The results show a positive effect of price differentiation on customer retention through perceived value, but a negative effect on retention through price unfairness perception and limited self-determination. Especially, a service fee in the conventional store was found to increase unfairness and to limit self-determination. Overall, the authors showed a positive net effect of channel-based price differentiation on customer retention, as the effects of perceived value on customer retention were far stronger than those of price unfairness and limited self-determination. Paul and Beckmann (2012) additionally determined conditions under which channel-based price differentiation is feasible and show operating costs need to be 5.1 percent lower for the online channel to ensure profitability of price differentiation by posting lower prices online. They

also found that the right consumers are directed to the right channel (i.e., price-sensitive consumers to the online shop) by self-selection processes. The authors provided valuable insights on consumers' acceptance of four different price instruments for realizing channel-based price differentiation, however seem to lack a comparison to a scenario of permanent price differentiation between the channels. Therefore, no conclusion can be drawn on the questions whether it is necessary to use one of the instruments, e.g. to announce a discount in one channel, to make consumers accept a price difference or whether permanent price differentiation is also feasible. Moreover, also in this study re-purchase intention was operationalized as self-reported likelihood. Measuring real purchase behavior would add higher validity to the results.

Fassnacht and Unterhuber (2015b) explored the impact of channel-based price differentiation for physical goods on key consumer reactions, i.e. fairness perception, intention to spread negative word-of-mouth about the retailer, and purchase intention. In three experimental studies they show that channel-based price differentiation for physical goods is feasible. Findings reveal that the extent of the price difference accepted depends on product category. The authors show in two different studies that while a small price difference (5%) is perceived fair and does not trigger negative consumer reactions for both a "look and feel" (t-shirt) and a quasi-commodity product (MP3-player), a comparably large price difference (15%) is perceived unfair and implies negative consumer reactions in case of a quasi-commodity but not a "look and feel" product. The authors argue that the difference observed between the two studies might be due to the difference in product characteristics and subsequently the difference in value provided by the channels for shopping the different categories. Furthermore, the studies demonstrate the interplay of two cognitive effects when facing channel-based price differentiation: (a) Implicit assumptions on higher costs to retailers running a brick-and-mortar store that might provide a justification for differing

prices versus (b) a general negative attitude and unfairness perception of price discrimination for the exact same product. According to the findings provided, the positive effect of pricing the channels according to costs in case of price differentiation with lower online prices seems to partly compensate for the negative perception associated with price discrimination. Consumers thus accept channel-based price differentiation with a reasonably lower online price, because prices reflect the cost differences to the retailer in the different channels. Finally, the authors show that actively communicating the additional value provided in an offline store can be a powerful weapon for retailers to promote the acceptance of price differentiation. Summarizing, this research provides evidence on consumer behavior in a situation when they are confronted with a retailer selling its products permanently at different price in its conventional retail store and online shop. The research however makes specific assumptions regarding the online retail environment and the purchase situation, which are likely to have influenced the results. One of these assumptions was for example the fact that shipping was free of charge in the scenarios presented. Moreover, although this research showed that size of the price difference, motive of the price difference and product category are important factors influencing consumers' fairness perception in an encounter with channel-based price differentiation, other factors that have been neglected might also play a role. Similar to previous research this research neither measures dependent variables such as purchase directly.

Unni, Tseng and Pillai (2010) discussed the issue of multi-channel pricing on the basis of results of a study they conducted to investigate differences in the use of price sources in online and offline shopping contexts. The results revealed that consumers are less likely to refer to prices they have seen in conventional stores when they are shopping online and the other way around, consumers are less likely to use prices they have previously seen online when they shop offline. The authors derive from these findings that multi-channel retailers

may not need to aim for price parity across channels, because online prices may not be relevant for consumers as a reference when shopping offline, even if they might recall online prices. Furthermore, they argue for differences in consumers' channel perceptions and price expectations among the channels as factors that could make channel-price integrity not beneficial for retailers. However, apart from the extent of daily online usage, individual differences were not controlled for in this study. The authors did not directly investigate the issue of cross-channel pricing; therefore caution is warranted in generalizing the results to the issue at hand.

This review demonstrates that research on cross-channel pricing from the consumer perspective, exploring concrete effects on customer behavior and cognition, has been sparse. Only recently, few researchers have started to explore the issue. This lack of research is surprising considering that theorists value channel-based price differentiation as a highly promising opportunity to increase profit, as we will discuss in the next section. The few studies available reveal that looking at consumers' reactions, channel-based price differentiation is feasible under certain circumstances for physical as well as service products, i.e. channel-based price differentiation does not necessarily trigger negative consumer price fairness perception or reactions. The feasibility depends, probably amongst other yet to be explored factors, on product category, the direction of the price difference, size of the price difference, motive for the price differentiation, price frame and norm perception as well as customers' self-selection to channels. Moreover, consumers do not seem to use prices encountered in one channel as reference in another, which also speaks to the feasibility of differentiation. However, depending on the overall price level, price differentiation may be perceived as unethical.

The studies presented make a good start to investigate channel-based price differentiation; however, considerable research is still necessary to draw a wider picture on the issue of cross-channel pricing from the consumer's point of view, especially when it comes to factors that influence consumers' acceptance of price differentiation between a retailer's online and offline channel. In the last chapter of this article, an extensive and structured agenda is provided on how research can best approach the lack of evidence and fill the gaps in order to arrive at a comprehensive understanding of what needs to be considered to prevent negative reactions on the customers' side when engaging in channel-based price differentiation or uniform pricing. Only if this is provided, managers have a solid basis to decide whether and how to use the different cross-channel pricing strategies.

3.2.2 Theoretical research assessing optimal retailer behavior

In the following section we will review and discuss the theoretical literature assessing the opportunities of uniform pricing versus channel-based price differentiation for multi-channel companies from an economical point of view. In the subsequent session we will then present findings of studies that explore how retailers deal with pricing in the presence of an online and offline channel today and factors that favor price differentiation or uniform pricing.

Few researchers have studied cross-channel pricing strategies for multi-channel companies operating a conventional retail store and an online shop in theory. More concrete, to our knowledge only Zhang et al. (2010) and Yan (2008) directly study the issue whether to price the channels at parity or whether to differentiate prices across channels from an economical point of view. Several other studies have a different focus, but also come to conclusions on the issue of cross-channel pricing during their considerations. Table 2 summarizes the findings of all six papers identified.

Zhang (2009) developed a series of analytical models to discuss the issue whether a multi-channel retailer should use its website to advertise its offline prices and comes to the conclusion that this is not always optimal. Because multi-channel retailers can benefit from drawing consumers from the online shop to the offline store by advertising their in-store-prices when margins are relatively low online, boosting online sales can negatively affect and even destroy overall profitability. Zhang et al. (2010) discuss several key issues concerning multi-channel retailing in their article. The authors see the decision on whether offerings in the online and offline channels should be homogenized or harmonized as one of the major issues multi-channel retailers face. They argue that from an economic point of view, multi-channel retailers should charge higher prices in direct channels such as the Internet because of higher marginal costs due to the fact that most of the costs in direct channels are variable e.g. shipping, packing and cost of return. Conventional stores on the other hand face largely fixed costs such as labor costs, real estate investment and utilities and should therefore be priced more aggressively in order to generate enough sales volume to cover these costs. These economic considerations however stand in contrast to consumers' expectations of lower prices in the online channel. The authors further argue that this coordination problem even increases when the channels are managed independently and that to be able to compete with online-only retailers, "[...] multi-channel retailers may need to adapt their pricing strategies despite differential cost structure and strategic objectives" (Zhang et al., 2010, p. 174).

Table 2: Overview on theoretical research assessing optimal retailer behavior

Reference	Research focus	Key results
Zhang (2009)	Discussion on when to follow a multi-channel strategy and how to advertise prices	<ul style="list-style-type: none"> • Advertising offline prices on the website not always beneficial • Multi-channel retailers can benefit from drawing consumers from the online shop to the offline store
Zhang et al. (2010)	Discussion of homogenization and harmonization of multi-channel offers	<ul style="list-style-type: none"> • Products with high variable costs to be priced at a premium online • Low-margin products to be priced at a discount online
Yan (2008)	Development of a game theory model to determine optimal pricing strategy	<ul style="list-style-type: none"> • Higher online than offline prices if the marginal cost for selling the product online is higher • No difference in optimal pricing strategies between competing and integrated market structures
Ratchford (2009)	Discussion of the advantages and disadvantages of channels	<ul style="list-style-type: none"> • Multi-channel retailers should be less aggressive in online pricing compared to single-channel sellers
Yoo and Lee (2011)	Game theoretic analysis of mixed channel structures in online entry	<ul style="list-style-type: none"> • Online and offline retailers are worse off with aligning prices across channels • It is more profitable for retailers to manage channels separately (following Lee and Staelin, 1997)
Van Baal (2014)	Development of conceptual model on cross-channel harmonization of marketing activities	<ul style="list-style-type: none"> • Uniform pricing does not lead to maximization of intra-channel profits
Zettelmeyer (2000)	Development of theoretical model on use of information in different channels	<ul style="list-style-type: none"> • Uniform pricing does not need to be optimal for multi-channel retailers

They suggest that charging different prices across channels might be an option for multi-channel retailers as long as the pricing mechanism is designed synergistically across channels. In this manner, products with high variable costs, e.g. shipping, could be priced at a premium online to draw consumers to the physical store, whereas low-margin products that require physical stores to carry large assortments should preferably be priced at a discount online to enhance online sales. Zhang and colleagues thus raise awareness for the importance of considering the individual situation regarding e.g., competition and customer perception. However, they do not provide clear guidance on how to balance the factors of influence they identify. The authors also make the assumption that consumers expect lower prices in the online store, which might not necessarily be the case if one considers the insights we have gained during the review of the literature on the consumer perspective in the previous chapter

(e.g. that depending on product category uniform pricing is perceived as fair as differential pricing). Therefore, to drive this argumentation further, research needs to gain further insights on the different factors of influence to be able to allow for a more differentiated view on these interrelations.

Yan (2008) develops a game theory model to determine the optimal pricing strategy for a multi-channel company under the Bertrand, Stackelberg and channel integration market structures. Findings are in line with Zhang et al.'s (2010) reasoning and reveal that the optimal pricing under any of these market structures for a multi-channel company is to set higher online than offline prices if the marginal cost for the product sold in the online shop is substantially larger than the marginal cost for the product sold through the offline channel. On the other hand, if the marginal cost for the product sold through the online channel is equal or less, the optimal pricing strategy for the firm is to set higher prices in the offline channel. These pricing strategies hold under competing and integrated market structures. The optimal marketing structure for multi-channel companies is the integration of the channels, “[...] which can effectively synchronize the price strategies of its two channels to manage consumer demand and maximize firm profit” (p. 53). However, this research neither adequately considers the consumer perspective; results depend on the assumption of perfect information on the consumers’ side. In real-world settings, it cannot be expected consumers are perfectly informed about marginal costs in either channel, which might make the framework flawed in predicting actual consumer behavior.

Ratchford (2009) provides a discussion of the respective advantages and disadvantages of each channel and argues that selling online can produce cost advantages compared to selling offline in the form of savings in inventory and sales personnel. However, these cost advantages may be offset by shipping costs and thus influence whether prices should be

lower or higher online than offline from the retailers' perspective. The author makes an important point by noting that because online and offline stores can be substitutes to a certain degree, multi-channel retailers should be less aggressive in online pricing compared to single-channel sellers. In analogy with Zhang et al. (2010), Ratchford (2009) identifies a tendency of multi-channel retailers charging higher prices in the online channel than their online-only counterparts (see also Ancarani and Shankar, 2004). Pan, Ratchford and Shankar (2004) reason that retailers usually post the same prices across channels because different prices across channels may lead to consumer irritation and channel cannibalization. Neslin and Shankar (2009) follow this argumentation but suggest multi-channel retailers to consider price differentiation between channels through "[...] channel-specific use of price promotions or through shipping and handling fees" (Neslin and Shankar, 2009, p. 79), or by selling slightly different products in the channels. While these ideas make intuitively sense, an empirical evaluation with consumer insights is needed in order to hold as guidelines for multi-channel retailers.

Yoo and Lee (2011) studied how different channel structures and varying market environments moderate the impact of Internet channel entry on the channel members, specifically looking at the introduction of an Internet channel in addition to an existing channel system. Their research follows game-theoretic consideration and acknowledges the diversity of possible structures, meaning physical store retailers adding an online channel (e.g., Staples) versus websites as a manufacturer's direct channel (e.g., dell.com) versus pure-play e-tailers (e.g., amazon.com). The authors identified five key effects whose interplay and individual size shapes the impact of the introduction of an online channel. To give an example, one of these key forces is what they termed the inter-channel price coordination effect. Here Yoo and Lee suggest that the online and offline retail outlets are worse off with inter-channel price coordination than with competitive pricing. From this finding, the authors

draw the following conclusion for multi-channel retailers: Following Lee and Staelin (1997) it is proposed that it is more profitable for multi-channel retailers to manage their channels separately unless the retailer is the channel price leader.

Van Baal (2014) deals with the question whether retailers should harmonize marketing activities, i.e. image, price and assortment, across distribution channels and shows that harmonization has advantages as well as disadvantages. With regard to the question whether a retailer should charge identical prices in the online and offline channel, the author concludes that harmonization does not lead to profit maximum intra-channel prices. However, his model does not go far enough to evaluate the intra-channel profit reduction through uniform pricing against the advantages of cross-channel integration such as customer retention. This step however would be necessary to give recommendations on which strategy maximizes profits across channels.

Zettelmeyer (2000) develops a theoretical model that indicates a multi-channel firm can strategically use information on its multiple channels to achieve finer consumer segmentation, which can allow for price differentiation. Findings indicate that it is not necessarily optimal for firms to simply duplicate their pricing strategy from conventional retail channels on the Internet. The optimal strategy depends more on the reach of the Internet and the competitive situation in the channels, as well as the strategies pursued in other existing channels.

This review of theoretical papers reveals that the issue of cross-channel pricing is complex and that many different factors can influence whether it is more profitable for multi-channel retailers to pursue channel integration through uniform pricing or to differentiate prices across channels. However, what all studies have in common is the acknowledgement of the possibility to differentiate prices between the offline and online channel under various

circumstances. These circumstances include market factors such as the level of competition, inter-firm factors such as costs for the distribution of the products, but also product- or consumer-related factors such as product category or consumers' expectations for prices in the different channels. In concrete terms, to begin with, retailers need to cover the cost the respective channel causes. Marginal cost may be higher in online stores, requiring higher prices. This goes well with the described advantages of managing channels separately instead of pricing at parity between the channels. The described studies point at price differentiation being a feasible instrument to account for cost differences, whilst the type of product as well as price advertisements need to be looked at in their respective context. Consumer preferences regarding where to buy certain product categories and effects of advertising offline prices in online shops can influence the success of any channel-based price differentiation strategy.

3.2.3 Observational research studying retailer behavior

Empirical research studying the occurrence of different cross-channel pricing strategies has been sparse. Several earlier researchers came to the conclusion that this strategy is not extensively used in practice (e.g., Sullivan and Thomas, 2004; Tang and Xing, 2001; Ancarani and Shankar, 2004). We identified only one article analyzing in concrete how multi-channel retailers deal with prices across online and offline channels, and what the incidence among retailers is. In the following, we review this empirical study by Wolk and Ebling (2010) providing insights on how retailers currently deal with prices across online and offline channels. The authors analyzed whether multi-channel retailers in Germany employ uniform or differential pricing among their conventional store(s) and online shop and ascertained the sizes of the price difference. In two comprehensive studies online and offline prices for 2,742 products sold by 115 multi-channel retailers in diverse industries (ranging from apparel and car rental to telecommunication) were monitored. The research included

various product and company characteristics. In order to monitor the development over time, data was compared between 2005 and 2006. Findings suggest that retailers increasingly engage in channel-based price differentiation and that there is a tendency of increasing price differentiation over time; however, price differences are rather low as compared to other types of self-selection price differentiation. In detail, the authors report that the percentage of multi-channel retailers engaging in channel-based price differentiation increased from 30% in 2005 to 61% in 2006. However, it is important to note that the compared samples were not identical, i.e. the authors did not follow the same retailers over time. Moreover, findings indicate that retailers pursuing price differentiation move from a unifying price differentiation strategy to a mixed strategy. 75% (2005) and 92% (2006) of retailers using price differentiation decide on a product-by-product basis whether to charge higher prices at the conventional store or the online shop. At the product level, the studies demonstrate that 21% and 34% of products are price differentiated. Thereby 73% and 63% of the products with price differentiation are priced with higher offline than online prices.

The authors additionally analyzed factors that influence the occurrence and the extent of channel-based price differentiation. Findings support the idea that retailers act in accordance with microeconomic theory. High levels of online competition, online reach and the number of channels of a multi-channel retailer all negatively affect the probability and the extent of price differentiation between the online and offline channels. Company size and brand power on the other hand tend to positively affect the relative size of the price gap; but greater offline reach decreases online prices relative to offline prices. Finally, product type also influences the size of the price difference. Price differentiation is highest in the case of services and lower with durable goods than non-durables. When looking at limitations it should be noted that shipping costs and costs of transportation were neglected in this study.

Future studies might include these factors in their analysis to arrive at a picture mirroring reality even more accurately.

The observations provided by Wolk and Ebling (2010) are in line with the contributions of the theoretical work reviewed earlier. Channel-based price differentiation is in place today (and will probably be even more so in the future), but its success depends on external factors such as product category or reach. The authors however find prices to usually be lower in the online shop than in the conventional store. This is in line with the economic considerations that Zhang and colleagues (2010) as well as Yan (2008) raise, at least in situations with lower marginal cost associated with the online shop. Though providing important insights, to our knowledge the research conducted by Wolk and Ebling (2010) stands alone in empirically investigating retailers that currently work with channel-based price differentiation, so the issue of marginal cost needs further exploration in future research.

Summarizing the results of this literature review, we can state that different cross-channel pricing strategies can be optimal under different circumstances. The major finding is that channel-based price differentiation is a feasible and potentially highly beneficial marketing instrument for retailers. In the first part of the literature review, we showed that also considering the impact of this instrument on the consumer, it is a feasible one given that certain prerequisites are met: The differentiation must not be perceived as unethical, which might be the case if consumers are left with a feeling of unfair pricing on the retailer's side. Furthermore, price frame and norm perception can jeopardize the success of the strategy and thus need to be considered and, if possible, influenced by retailers engaging in disparity policy. Moreover, consumers' acceptance of channel-based price differentiation depends on their perception of retailers' costs in the different channels. Channel-based price

differentiation is not necessarily perceived unfair if explained through cost differences. Besides this, also product category plays an important role in the perception of price differentiation versus uniform pricing, especially when it comes to the size of the price difference accepted. Research also found, that price comparisons need not necessarily undermine the feasibility of price differentiation between channels. Moreover, theorists have demonstrated that depending on which channel produces higher marginal costs for selling the product, it can be more profitable for one company to charge higher prices offline and higher prices online for another.

All in all, the research landscape to date awards great potential especially to channel-based price differentiation strategies. However, the issue at hand is a highly complex one, with many more factors potentially impacting its outcome. The next part of this article outlines further ideas and avenues for researchers in order to arrive at a comprehensive understanding of all relevant perspectives on the topic at hand.

3.3 Directions for future research on cross-channel pricing

In the following we work out comprehensive directions for future research. Research on cross-channel pricing issues concerning multi-channel companies has proven to be quite sparse. Some scientists have studied theoretical models to argue for price differentiation strategies compared to a strategy of uniform pricing, others have considered effects of cross-channel pricing on consumer perception, attitudes, and behavior. Due to this lack of research and the fact that pricing in the context of online and offline channels has become one of the most important issues for retailers (Sotgiu and Ancarani 2004), we consider it necessary to point out important avenues for future research in this field. We present an extensive outline for consumer research on cross-channel pricing in particular and give recommendations on how the insights gained through consumer research can be used to improve the theoretical

models researchers use when financially evaluating cross-channel pricing strategies for retailers.

3.3.1 Directions for empirical research exploring consumer behavior

Gaining insights on cross-channel pricing from the consumer's point of view is the most important issue from our perspective. The lack of research in this field makes it particularly necessary for scientists to comprehensively study different cross-channel pricing strategies from the consumer's point of view in order to understand the determinants and consequences of their emotions, attitudes and behavioral reactions. Only if we have gained more insights on how consumers react towards different cross-channel pricing strategies, we can then use this knowledge as input to our theoretical models to make these models as realistic as possible when studying which pricing strategy is most profitable for retailers under various specific circumstances.

To gain insights on how consumers behave in an encounter with different cross-channel pricing strategies – i.e. price differentiation and uniform pricing, we suggest using both laboratory and field experiments. While laboratory experiments allow exploring potential effects or non-effects under controlled conditions, which helps determining the effect due to one specific variable by eliminating potentially confounding variables, field experiments help to investigate consumer behavior in a real-world setting (Venkatesan, 1967). Field experiments are therefore important to gain insights on how consumers indeed behave when shopping at a multi-channel retailer. For example, measuring actual purchase might lead to different results than just measuring purchase intention in an artificial laboratory setting.

We organize our agenda for future research on cross-channel pricing around the conceptual framework on price fairness provided by Xia, Monroe and Cox (2004). The framework on price fairness is well suited to organize this agenda because price fairness is

considered playing an important role in explaining consumer reactions to prices. Xia et al. (2004) suggest that when consumers compare prices, the perceived fairness of these prices depends on the transaction similarity and the choice of the comparison party, the distribution of cost and profit and attributions of responsibility, the buyer-seller relationship stage as well as knowledge, beliefs and social norms. Perceived fairness or unfairness may then lead to self-protecting measures or revenge-seeking behavior or might not influence consumer behavior. Xia et al. (2004) propose that this effect is mediated by perceived value and negative emotions and dependent on the perceived costs of the action for the consumer.

The framework describes a wide range of factors that are supposed to influence price fairness perception during transactions and potential consumer reactions when they perceive prices as unfair. For our agenda of future research, we use the factors supposed to influence fairness perception proposed by Xia et al. (2004) and several additional factors that we expect to influence consumers' acceptance of different cross-channel pricing strategies, i.e. consumer personality, retail format, situational components, posted versus paid prices, market specifics and cultural differences, to highlight some of the topics for future research (see Table 3). By this means, we consider it of high relevance to study the interplay of these factors and how they relate to each other. Additional to discussing factors that might influence consumer acceptance of different cross-channel pricing strategies we also discuss variables to measure consumer behavior. Compared to Xia et al. (2004) we will not focus on variables measuring consumer reaction in case of perceived unfairness solely, but also variables measuring the success of pricing strategies such as purchase intention or perceived value for money in general.

Consumer behavior. Measuring how consumers react towards different company strategies is important for companies to predict the impact of these strategies on revenue and

profit. One can thereby differentiate between factors directly predicting the impact on revenue such as purchase intention, re-purchase intention and willingness to pay and factors indirectly indicating an effect on revenue such as consumers' satisfaction with a price or the perceived price value relation. These are important measures of a firm's success in attracting consumers with its offer, but have not found sufficient consideration in consumer research on cross-channel pricing so far. Few researchers have provided first evidence on (re-) purchase intention but neither willingness to pay nor any of the variables measuring the impact indirectly have been accounted for in the literature yet.

Additionally, following the framework on price fairness provided by Xia et al. (2004), we consider it important to further investigate consumer reactions towards different cross-channel pricing strategies that might harm the seller. Those reactions are often consequences of perceived unfairness, which might be evoked through price differentiation. As price discrimination has proven to be associated with negative effects by consumers in different contexts (e.g. Dark and Dahl, 2003), it is important to gain insights on potential negative consumer reactions towards the practice of channel-based price differentiation compared to pricing the channels at parity. Thereby, Xia et al. (2004) differentiate between self-protecting measures such as complaint to supplier, change of supplier, negative word-of-mouth, demand of compensation from the supplier or revenge-seeking behavior such as change to direct competitor, retaliation action in court or supplier boycott. In the context of cross-channel pricing these self-protecting and especially revenge-seeking actions have not been sufficiently investigated until now.

For managers of multi-channel companies, it would be highly valuable if we as researchers would provide them with further evidence on how consumers act in an encounter with different cross-channel pricing strategies. Only if this is provided, practitioners'

skepticism towards channel-based price differentiation because of fear of negative consumer reactions can be reduced and the potential of channel-based price differentiation to increase profits attributed by theorists can be leveraged.

Price fairness perception. Price fairness is a phenomenon that has been broadly studied in the past and researchers have been extending the concept of price fairness further and further to new pricing approaches (Haws and Bearden, 2006). However, it has not received sufficient attention in the context of cross-channel pricing so far. As our review of the literature has demonstrated only recently few researchers have studied price fairness with regards to cross-channel pricing strategies. The few insights gained so far should therefore be systematically extended further. We are still missing full clarification to questions such as what makes consumers perceive price differentiation fair/unfair and what drives fairness perception towards uniform pricing versus channel-based price differentiation. Past research has demonstrated that fairness perception of different cross-channel pricing strategies seems to depend on product category, the direction of the price difference, size of the price difference, motive for the price differentiation, price frame and norm perception as well as customers' self-selection to channels (see Choi and Mattila, 2009; Choi et al, 2009; Fassnacht and Unterhuber, 2015b); however, it is likely that there are diverse other factors which also influence fairness perception. We will have a detailed look at these factors in the following.

Because perceptions of fairness or unfairness are expected to trigger consumer reactions (Xia et al., 2004), it is important to note that price fairness is likely to mediate the effect of different cross-channel pricing strategies on different consumer behavior variables described earlier. Further investigation of whether and how price fairness or other factors act as mediators is another topic relevant to draw a clear picture on consumer behavior.

Factors influencing price fairness perception and consumer behavior

Diverse factors will influence whether consumers perceive different cross-channel pricing strategies fair and how they react. We identified twelve factors summarized in Table 3, which we will discuss in detail in the following. The list of factors consists of those provided by Xia et al. (2004) in their framework on price fairness and additional factors we identified when studying the issue of cross-channel pricing in detail for our literature review.

Direction of the price difference. Research demonstrated that retailers applying channel-based price differentiation mainly follow a mixed strategy, charging either higher online or higher offline prices for identical products (Wolk and Ebling, 2010). However, Fassnacht and Unterhuber (2015b) provided first evidence that online prices are considered unfair across three different product categories, which would advise retailers to not charge higher online prices for products in these categories. As a consequence, the question remains whether this is the case for all different product categories or whether there are products where consumers accept or even expect a higher price online. If this is not the case, retailers might want to reconsider pricing part of their assortment with higher prices online.

Table 3: Overview of factors of interest for investigation in the context of cross-channel pricing

Factors considered to influence the acceptance of cross-channel pricing strategies:

- Direction of the price difference
 - Size of the price difference
 - Transaction similarity
 - Product category
 - Motive for the pricing
 - Norm perception and metaknowledge of the market place
 - Buyer-seller relationship stage and trust
 - Retail format
 - Consumer personality
 - Purchase situation
 - Posted versus paid prices
 - Market specifics and cultural differences
-

Size of the price difference. Deciding on the right size of the price difference is another challenge multi-channel retailers striving for channel-based price differentiation face. Interviews we conducted with experts from the consumer goods, retailing and consulting industries revealed especially the following questions relevant for further clarification: What is a maximum price difference accepted by consumers? Is there perhaps a minimum price difference demanded by consumers? What is the optimal price difference for a product? Which factors influence the minimum, maximum and optimal price difference? It is assumed that consumers generally view larger price differences as less fair (Grewal, Hardesty and Iyer, 2004); but does this apply to the context of channel-based price differentiation where online and offline channels differ in various transaction characteristics (Chiang and Dholakia, 2003)? First indications have been provided that the price difference accepted depends on product category. In the context of the question of the optimal price difference, it will therefore be inevitable to further investigate product category and other factors determining the similarity of online and offline transactions.

Transaction similarity. If a retailer sells identical products online and offline, the similarity of the two transactions certainly plays a role when consumers decide on whether they perceive a price difference between the two transactions as fair or not. Thereby, online and offline channels can differ in various aspects related to the transaction (Chiang and Dholakia, 2003). Transaction characteristics can be described in terms of the costs of the transaction to a consumer; besides the selling price, the full price of a transaction for a consumer includes transaction costs, shipping costs, handling costs, search costs, waiting costs, and risk costs (Grewal et al., 2010). These costs and thus the value of the transaction to the consumer can be vastly different between shopping online and offline and might thus influence consumers' acceptance of price differences between the channels.

Search costs, for example, depend heavily on product category. Products usually have digital attributes, which are easy to judge online at very low costs, and non-digital attributes in need for investigation in person to fully evaluate their quality (Lal and Sarvary, 1999). Closely related to search costs is the fact that the service level offered is considered to be lower online than offline (Anderson, Day, and Rangan, 1997). This might drive consumers to perceive a certain price difference fair for products requiring professional advice from sales personnel prior to purchase. Risk costs can be considered as costs to consumers due to uncertainty, e.g. uncertainty about getting the right item, uncertainty regarding post-purchase service, uncertainty about exchange-/refund policies for returns or uncertainty due to online payment or the fact that physical examination of a product is not possible when shopping online (Kacen, Hess and Chiang, 2002). Therefore, consumers' perceived risk when shopping online or offline may also influence their acceptance of channel-based price differentiation. Waiting costs and shipping and handling charges are relevant largely when shopping online and thus account for a difference between online and offline transactions per se. Offline transactions on the other hand offer consumers a more interesting social experience than online transactions (Kacen, Hess and Chiang, 2002).

To summarize, there are many factors that influence how consumers perceive an online transaction compared to an offline transaction. Research is needed on how each of these factors individually and the interplay of these factors drive consumer perception of channel-based price differentiation versus uniform pricing. In a next step, it would be fruitful to explore how retailers can actively influence perceived transaction similarity between the two channels towards consumers' acceptance of a pricing strategy that is optimal from an economical point of view. This can for example be a clear differentiation between the service offered in the different channels and the use of communication tactics to explain consumers

what they get for the prices in the different channels. We will discuss the influence of the motive of a pricing practice on consumers' acceptance in more detail later.

Product category. As already mentioned, product category has an important impact on the similarity of online and offline transactions. But besides the fact that the Internet can provide an enormous advantage with regard to search costs for products of mainly digital attributes (Lal and Sarvary, 1999), other product characteristics are also likely to influence perceived quality of the different channels. Those are physical and functional characteristics such as product size, product weight, durability, perishability or complexity, service related characteristics such as delivery, installation or customer service, characteristics related to purchase behavior such as whether the product is a convenience, shopping, specialty or preference good (Definitions Committee, AMA, 1948) as well the product type meaning, for example if the product is a main product or just an accessory. To gain a holistic view on for which types of products price differentiation is feasible, we as researchers need to work out differences from a consumer's point of view in detail. This will then allow multi-channel companies to tailor their pricing strategies to different product categories.

Motive for the pricing. The perceived motive of a firm's pricing decisions greatly affects consumers' price fairness perception (Campbell, 1999) and subsequently acceptance of the pricing practice. If a retailer charges different prices for identical products in its conventional store and online shop, consumers' acceptance is thus likely to depend on the reason for the price difference. This reason, as just discussed, can lie in the similarity of the transactions from a consumer's point of view. But it is also known that consumers accept price differences primarily when the seller's costs differ (cf. Garbarino and Lee, 2003; Bolton, Warlop, and Alba, 2003). Therefore, probably also consumers' perception of a firm's costs in the different channels is likely to affect the acceptance of price differentiation versus

uniform pricing. Fassnacht and Unterhuber (2015b) provided first insights on this. They found that consumers use their estimations on the costs to the retailer in the different channels when evaluating channel-based price differences. However, relevant insights on how consumers estimate retailers' costs in the different channels and how this translates to an assessment of the retailer's profit in the channels are still missing. Furthermore, we know that consumers are generally seen as having only little knowledge of sellers' actual costs (Bolton et al., 2003). And when there is no information on the seller's costs, consumers make attributions as to who is responsible for prices (Xia et al., 2004). Future research therefore needs to also explore how consumers make attributions of responsibility when they are not aware of the costs in the different channels. In this context, it would be valuable for multi-channel retailers to have insights on what other factors than costs consumers consider as justifying differential prices between the channels. In this case, is it the similarity of the transactions from consumers' point of view that dominates their judgment or do consumers consider any other factors such as a potential difference in competition in the channels as a reasonable motive to sell a product at a different price online than offline?

As already mentioned earlier, retailers may probably be able to foster acceptance for their cross-channel pricing practices by providing consumers with an explanation on why they set uniform or differential prices. Folkes (1990) argues that an explanation of why an unexpected price occurs helps consumers to understand and accept this price and first insights that actively communicating and explaining a difference in prices between the online and offline channel can increase fairness perception have been provided. This is an interesting finding with important managerial implication for multi-channel retailers. However, to be practically useful, substantial further insights need to be gained on how an explanation should look like to reduce or avoid negative consumer reactions and how this explanation should be communicated.

Norm perception and metaknowledge of the market place. Consumers gain knowledge on a firm's pricing tactics based on their own experiences (Xia et al., 2004). Over time metaknowledge on the market develops in consumers' minds. This metaknowledge affects how they judge fairness (Bolton et al., 2003). Finally, when a business practice develops to a norm, this practice might be considered less unfair and become more acceptable to consumers (Sutherland and Cressey, 1970, cited after Choi and Mattila, 2009). Consumers are therefore more willing to accept practices of price differentiation if those practices are perceived as an industry norm (e.g. Wirtz and Kimes, 2007; Choi and Mattila, 2009). Today, probably most consumers are likely to consider uniform pricing across channels to be the norm. However, this might change with an increasing prevalence of price differentiation found by Wolk and Ebling (2010). Research investigating cross-channel pricing should therefore always pay attention to whether consumers' norm perceptions are changing over time and follow the development of changes in the acceptance of different pricing strategies.

Buyer-seller relationship stage and trust. According to Xia et al. (2004) the relationship between a buyer and a seller and the meaning of trust develop over repeated interactions. The stage of the buyer-seller relationship as well as the stage of trust between the two parties is therefore another factor we consider likely to impact consumers' acceptance of different cross-channel pricing strategies. Especially when it comes to price differentiation between the channels, trust of the consumer in the seller's practices may help to foster its acceptance. Although practical application of this effect is quite challenging, insights should be gained on whether price differentiation is more feasible for retailers with a very loyal customer base or if for example new customers are put off by price disparity between channels. These insights will help multi-channel retailers when evaluating whether they are in an advantageous position to discriminate prices or not.

Retail format. How consumers perceive different cross-channel price strategies, i.e. uniform pricing and channel-based price differentiation, can also be determined by the format of the retailer pursuing this strategy. An interesting topic is how the type of store, store performance and price format used influence whether uniform or differentiation pricing finds higher acceptance among consumers. Relevant questions in this context are for example: Is a higher offline than online price more readily accepted if the store is a department store compared to a discount store because of the better service offered? What is the role of store performance factors such as assortment, atmosphere, and opening hours? What role does the price format a retailer pursues play? Answers to these questions will foster our understanding of the reasons behind how companies deal with their pricing across channels today.

Consumer personality. Research has proven that consumers act differently depending on their interests, needs, preferences, attitudes and values etc.; therefore, consumer research always needs to account for factors that distinguish different buyers from each other. In the present context such factors are for example: Shopping orientation, product involvement, purchase involvement, values and lifestyle, Internet affinity, channel perception and preference, channel usage as well as diverse socio-demographic factors. These insights on different customer groups are of high relevance for retailers if they want to pursue need-based segmentation of customers to serve them with the right offer in the right channel. Today, many companies are missing these insights and therefore the capabilities necessary for sophisticated need-based customer segmentation.

Purchase situation. Diverse factors with regards to the purchase situation can also be expected to influence how consumers react to uniform pricing versus channel-based price differentiation. Spatial distance, temporal distance, type of buying decision, social surrounding and shopping occasion are the five factors determining a purchase situation we

consider most relevant. Considering spatial distance in the shopping situation, relevant questions are how the physical location of the consumer at the time a price difference is revealed influences acceptance; or whether consumers react differently if they discover the price difference online at home or when shopping in the retailer's conventional store, e.g. by using price search apps on their smartphones. With regards to temporal distance, urgency of a purchase and time pressure are factors likely to influence consumer behavior. Also, the dimension of whether the product will be immediately available (as is the case when buying in-store) or will arrive with a delay (as is the case when waiting for an item bought online to be shipped) can influence consumers' cognition. This is again related to transaction similarity discussed earlier. As it predicts cognitive effects of both spatial and temporal distance, a link of price fairness research with Construal Level Theory (see e.g. Liberman, Trope and Wakslak, 2007; Trope and Liberman, 2010) might be fruitful. With regard to the buying decision interesting questions are: Is there a difference between extensive, limited, habitual or impulsive (Kroeber-Riel and Weinberg, 2003) buying decisions? How do these patterns relate to fairness perception? The last two factors determining the purchase situation are social surrounding and shopping occasion. An interesting question with regard to social surrounding is whether perceptions of channel-based price differences are affected by contact with others during the purchase decision. For example, friends or sales staff might activate specific norms and values in the purchase situation, which in turn influence fairness perception. Concerning the shopping occasion, perception of price differences may be different before Christmas, where shopping malls are often crowded, than during the year. In this context an important question is whether the amount of people is the decisive factor, or a different mindset related to special occasions such as Christmas.

Posted versus paid prices. Due to shipping and handling charges posted and paid prices are often different when shopping online (Neslin and Shankar, 2009). Whether consumers

realize a price difference and how they evaluate this price difference probably depends on the fact whether they use the posted (prices without costs for shipping or handling) or paid (prices including costs for shipping or handling) prices as reference for their evaluation. As we do not yet know how consumers compare online and offline prices and how they value shipping costs (Grewal et al., 2010), research regarding this issue is warranted. In the context of cross-channel pricing it is of particular interest to gain insights on how the presence and absence of shipping and handling charges influence consumers' perception of channel-based price differences. Findings from such research would stimulate the development of retailer strategies to communicate fees and charges in a way that does not negatively impact consumers' résumés from their price comparisons.

Market specifics and cultural differences. Finally, research needs to explore and account for market and cultural differences. Research findings in one market can probably not be translated one to one to another market because of different conditions in the markets. American and European consumers for example are likely to react differently to practices of channel-based price differentiation, a phenomenon much more common in the US than in Europe today. This difference in norms might likely affect consumers' acceptance of price differences between the online and offline channel of a multi-channel firm. These insights on market differences are relevant for local retailers in the markets as well as for large companies operating in various different markets. To make the right decision on whether the pricing strategy in one market can be transferred to another market or whether pricing needs to be tailored for each specific market, this knowledge is inevitable.

3.3.2 Directions for theoretical research assessing optimal retailer behavior

The review of literature revealed that there is only little research studying cross-channel pricing in theory. It also demonstrated that the issue is complex and that various different factors can influence whether it is more profitable for multi-channel retailers to price the

channels at parity or to differentiate prices across channels. As mentioned earlier these factors are market-related such as level of competition, inter-firm specific such as costs for the distribution of the products, but also product- or consumer-related such as product category or consumers' expectations for prices in the different channels. The diversity of these factors makes it difficult to build theoretical models that take into account all the different variables of influence. Researchers so far mainly focused on discussing cross-channel pricing as influenced by the competitive landscape and on the basis of the costs to the seller or the risk of the channels cannibalizing each other. The influence of product- and consumer-related factors however has not found sufficient consideration so far. Therefore, future research should extend existing or build new theoretical models that take into account consumer behavior to a sufficient extent. This is necessary because the success of different cross-channel pricing strategies heavily depends on consumers' acceptance.

However, first of all and prior to evaluating whether a pricing strategy is successful or not, clear definitions of what success means are necessary. Investigating e.g., the firm's profitability, customer satisfaction, or revenue is fruitful. Other outcomes of the strategy should also be determined and researched to arrive at a comprehensive understanding of the pricing strategy's impact in a company. In a next step determinants of success need to be explored further. Managers would want to understand what crucial factors are that might exert influence on the success of a price differentiation strategy. As mentioned earlier, because of their high relevance especially consumer insights should be accounted for and included in theoretical models. As a consequence the interplay of the different factors on the success of different cross-channel pricing strategies needs to be further studied as well. To be able to depict the retail environment most realistic the mutual influence of the factors on each other needs investigation. To name an example, it would be of high interest to gain further insights on how the size of the price difference accepted by consumers depends on product

category and how this correlates with the retailer's cost structure in the different channels and thus determines which pricing strategy is optimal from a revenue and profit perspective. Special attention should also be directed to interdependencies between the different channels. Many consumers are multi-channel shoppers today. This means, for example, they might gather information on a product in a conventional store because they like to assess the look-and-feel of the product, but then buy it online. Pricing has the power to positively or negatively influence this behavior and cannibalization of the channels is an issue that should never be neglected when it comes to studying issues of cross-channel pricing.

Theoretical work on cross-channel pricing is the vital element that allows providing managers of multi-channel companies with recommendations on how to use different pricing strategies in the dual channel environment. Only if we bring together economical considerations with the insights gained during empirical research with consumers, valid propositions are possible on what is optimal for a specific retailer under specific conditions.

3.3.3 Directions for observational research studying retailer behavior

Studying how multi-channel retailers deal with cross-channel pricing today and over time is of interest to understand existing market practices and to be able to interpret the results of theoretical considerations for retailers in different markets in a proper way.

Therefore, further research investigating the prevalence of different cross-channel pricing strategies and channel-based price differentiation in different markets would be of considerable interest. So far, there is only data from one study on German multi-channel retailers (Wolk and Ebling, 2010). For example, comparing how American, European and Chinese retailers or how retailers in different European countries deal with cross-channel pricing today would probably reveal interesting differences. These differences are crucial to know when deriving recommendations to managers of retailers in different markets.

In this context, especially further dynamic studies are warranted to assess the evolution of the implementation of channel-based price differentiation versus uniform pricing in diverse markets and how this depends on various factors such as different product categories. Relevant questions in this context are: What are determinants of these strategies' success? What steps is the process of introducing the strategy divided in? This will help to gain insights on how the different markets are developing and which methods and practices are about to develop a norm in a market. Norm perception is one of the factors that are expected to importantly influence consumer behavior towards different cross-channel pricing practices as described earlier.

Moreover, research observing the occurrence of different cross-channel pricing strategies should pay further attention to investigating potential factors that influence the prevalence and the decision to engage in channel-based price differentiation today as well as over time. These factors may be for example market-related factors, firm-related factors, consumer-related factors or product-related factors. Answering questions such as “Do companies with very high revenue in highly competitive markets selling service products engage in channel-based price differentiation more often or more successfully than other companies selling physical goods with low overall revenue?” would reveal interesting insights in this context.

Concrete effects of channel-based price differentiation on revenues and profit should be assessed in systematic studies including firm- and market-characteristics. Research of this kind would provide a highly valuable source of orientation for retailers thinking about engaging in price differentiation between their channels in the future.

3.4 Conclusion

This paper provides a comprehensive review of the existing literature on cross-channel pricing and finds that research investigating whether multi-channel companies should charge identical prices between the channels or differentiate prices across channels has been relatively sparse so far. Some scientists provided theoretical evidence that channel-based price differentiation can be beneficial for multi-channel firms under certain circumstances. However, only limited research is available examining how multi-channel retailers deal with cross-channel pricing today and how the different pricing strategies are accepted by consumers. Particularly the lack of empirical research with consumers is hard to explain if one considers that theorists value channel-based price differentiation as an opportunity to increase profits.

We therefore think that it would be of high value to find out more about how consumers perceive different cross-channel pricing strategies and how they react to different practices of price differentiation. In this context, we identified many different factors that may influence consumers' behavior, which might therefore be of interest for further investigation. Some of the main unanswered questions are: What are consumers' behavioral intentions and reactions when they are opposed to different cross-channel price strategies? What factors influence the acceptance of channel-based price differentiation? What role does consumers' perception of the seller's costs and profit in different channels play? We hope to have pointed out the need for future research to attend to these and many other questions in order to provide managers of multi-channel companies with a more solid basis for their pricing decisions.

4 Empirical research: Consumer response to online/offline price differentiation²

4.1 Introduction

Multi-channel retailing has become a popular business model (Wind and Mahajan, 2002). Many large retailers such as Walmart, Target or Staples pursue a multi-channel strategy using both conventional retail stores and the Internet to sell their merchandise (Zhang, 2009). Additionally, pricing has become an indispensable tool for retailers (Ahmetoglu, Furnham and Fagan, 2014). Therefore, pricing in the context of multiple channels has become an important issue for retailers (Sotgiu and Ancarani, 2004; Wolk and Ebling, 2010; Paul and Beckman, 2012). In concrete, multi-channel retailers face the challenge whether to price products at parity across channels or to sell the same product at different prices in each channel. Recent empirical studies on retailer's pricing behavior across channels show conflicting results (Homburg, Lauer and Vomberg, 2014). While some reveal similar prices between multi-channel retailers' online and offline channels (Flores and Sun, 2014), others indicate that up to 60 percent of multi-channel retailers engage in channel-based price differentiation and that this trend is increasing (Wolk and Ebling, 2010). While most theorists acknowledge channel-based price differentiation as an opportunity to increase profits (e.g., Yoo and Lee, 2011; Zhang et al., 2010; Yan, 2008; Zettelmeyer, 2000), many practitioners fear needing to explain differential prices to consumers and negative consumer reactions and therefore keep prices similar across channels (Asheraft, 2001; Pan, Ratchford and Shankar, 2004; Homburg, Lauer and Vomberg, 2014). Although fear of negative consumer reaction to channel-based price discrimination may seem reasonable, especially against the background of the changing retail environment with increase in price transparency through technological innovations such as barcode scanners and price comparison Apps,

² Based on an article by Fassnacht and Unterhuber (2015) accepted for publication at the Journal of Retailing and Consumer Services (JRCS)

sufficient evidence has not been provided. To provide a solid basis for multi-channel retailers to decide on whether to differentiate prices across channels or not, research is warranted to deeper investigate the interaction of channel-based price differentiation and consumer behavior (Paul and Beckman, 2012; Flores and Sun, 2014; Homburg, Lauer and Vomberg, 2014). The present research aims at filling this gap in the retail research literature.

Table 4: Overview of research outline

	Focus	Product of study	Dependent measures	Hypotheses tested
Study 1	<ul style="list-style-type: none"> Effect of size and direction of price difference 	T-shirt (look-and-feel)	Price fairness, WOM	H1a, c, d, f
Study 2	<ul style="list-style-type: none"> Effect of size and direction of price difference Role of the seller's costs in the different channels 	MP3 player (quasi-commodity)	Price fairness, WOM, purchase intention	H1a-f, H2
Study 3	<ul style="list-style-type: none"> Effect of size of price difference Positive effect of explaining the price difference 	Sofa (quasi-commodity)	Price fairness, WOM, purchase intention	H1d-f, H3
Cross-study comparison	<ul style="list-style-type: none"> Comparison of Study 1 and Study2 results for product category effects 	Look-and-feel vs. quasi-commodity	Price fairness, WOM	H4

WOM=word-of-mouth

This research examines perceptions of price fairness across channels, consequences of these perceptions and the cognitive effects behind. In concrete, the purposes of this research are: (1) to explore how the direction of the price difference, the size of the price difference and product category impact consumers' perception of fairness, purchase intention and intention to word-of-mouth (WOM), (2) to investigate how consumers' implicit assumptions on the costs of a good to the seller in the different channels influence their perception of and reaction to channel-based price differentiation, and (3) to explore whether an explanation of the price difference can help foster consumer acceptance. Implications for pricing products

across channels to optimize profits without causing a counter-fire by consumers are discussed. Table 4 provides an overview of the research outline.

4.2 Literature review

Price discrimination allows segmenting customers according to their willingness to pay by charging different prices for the same or similar products (Phlips, 1981). It has been categorized into three different types depending on the ability to extract consumer surplus (Pigou, 1960). Channel-based price differentiation is a form of second-degree price discrimination. Different prices are charged for the same product in the offline and online channel and consumers are allowed to self-select their preferred channel-price combination (Wolk and Ebling, 2010, Cuellar and Brunamonti, 2014).

Price discrimination has been extensively discussed in marketing and economics literature across various contexts (e.g., Elmaghraby and Keskinocak, 2003; Wu et al., 2012) and its importance for retailers has increased with technological developments (Grewal and Compeau, 1999). However, existing research on permanent price discrimination across sales channels is limited. Generally, researchers have studied channel-based price differentiation from three different perspectives: Theoretical research assessing optimal retailer behavior, observational research studying how retailers behave today and empirical research exploring consumer behavior towards practices of channel-based price differentiation (Fassnacht and Unterhuber, 2015a). This research studies channel-based price differentiation from consumers' point of view, therefore our literature review focuses on this stream of research.

Choi and Mattila (2009) show that price differentiation is perceived less fair than uniform pricing if it is not considered a norm independent of the price frame, meaning the relative positioning of prices. On the other hand, fairness perception towards uniform versus differential pricing was found to depend on price frame if price differentiation is considered a

norm. While with a positive price frame (lower price compared to similar offers) price differentiation did not cause lower fairness perception than uniform pricing, a neutral or negative price frame lead to reduced fairness perception with differentiated prices. The authors find these results for hotel bookings. Choi, Mattila, Park and Kang (2009) also studied effects of channel-based price differentiation in the hotel industry focusing on price frame as a central variable. They point out that if prices are lower or equal to the uniform pricing condition, price differentiation does not affect ethicality evaluation and purchase intention. However, this changes if at least one of the prices is higher in the price differentiation condition. Paul and Beckmann (2012) studied online discount, online promotion, online clearance and service fee as different routes to pursue channel-based price differentiation. The authors found a positive relation between price differentiation and customer retention through perceived value and a negative impact on retention through price unfairness perception. Charging a service fee in the conventional store thereby particularly increased unfairness. Furthermore, the authors provide evidence that costs should be around 5% lower when selling online for price differentiation with lower online prices to be profitable.

To summarize, researchers have provided first valuable insights on consumer perception towards channel-based price differentiation, however, to fully understand how consumers act in an encounter with channel-based price differentiation, further research is needed. Researchers need to more specifically explore what makes consumers accept channel-based price differentiation. Questions such as the role of product category and size of the price difference discussed in this research have not found consideration in the literature so far. Past research did not study physical but only service goods, nor has the effect of different sizes of price difference been investigated. Moreover, the cognitive effects lying behind consumer behavior in an encounter with channel-based price differentiation have not been

studied sufficiently so far. First insights were gained on the role of norm perception and price frame, but consumers' perception of the seller's costs in the different channels has not found consideration yet. Furthermore, past research identified focused mainly on price fairness or unfairness, but comes short on studying consumer reactions such as self-protective measures or revenge (e.g., Choi and Mattila, 2009; Choi, Mattila, Park and Kang, 2009; Paul and Beckmann, 2012). Finally, potential options for retailers to foster acceptance of channel-based price differentiation have not found consideration.

4.3 Research hypotheses

Diverse research has shown that consumers perceive price discrimination unfair (e.g. Dark and Dahl, 2003; Anderson and Simester, 2008; Wu et al., 2012). Also channel-based price differentiation is likely to evoke a feeling of unfairness in consumers' minds (Choi and Matilla, 2009). If consumers accept price differences however, this is primarily in conditions where costs differ (Garbarino and Lee, 2003). The costs of a good to the seller are expected to play an important role during fairness evaluations (Bearden, Carlson and Hardesty, 2003; Thaler, 1985, as cited by Bolton, Warlop and Alba 2003). Consumers tend to evaluate prices according to the cost-plus rule (Bearden, Carlson and Hardesty, 2003; Thaler, 1985). In the multi-channel retail environment, selling online is associated with lower costs than selling offline. Theorists usually assume that the online channel provides cost advantages in their models (e.g., Anderson, Day and Rangan, 1997; Ratchford, 2009; Zhang et al., 2010) and consumers expect a fair price for a product to be lower on the Internet (Jensen et al., 2003). The fact they value conventional stores of higher functionality than online shops (Wolk and Ebling, 2010) gives another reason to believe that they consider conventional stores of higher costs to the seller than an online shop. Therefore, we expect the interplay between the negative effects of price discrimination in general and a positive or negative effect through pricing the channels according to or against costs to affect consumer fairness perception in an

encounter with channel-based price differentiation. Equity theory supports this proposition. Equity theory suggests exchange relationships are considered fair if the observed outcome-input ratios do not significantly differ from each other (Adams, 1963, 1965; Homans, 1961). Therefore, in case of the multi-channel retail environment a higher price (outcome) in one channel needs to be reflected by a higher input for the retailer in this channel for consumers to consider the price difference as fair. The principle of dual entitlement (Kahnemann, Knetsch and Thaler, 1986) gives further support. It says that it is considered fair if sellers increase prices when their costs increase. Conversely, this however also means that a price difference should not be too high. Because if the price difference exceeds the cost difference this leads again to a condition of inequity. Finally, as perceptions of price fairness and unfairness influence consumer reaction (Xia et al., 2004), an immediate effect on purchase intention and negative WOM is expected. We therefore hypothesize:

Price differentiation with higher online price...

- H1a.** ...negatively affects fairness perception.
- H1b.** ...negatively affects purchase intention.
- H1c.** ...negatively affects word-of-mouth intention.

Price differentiation with lower online price...

- H1d.** ...negatively affects fairness perception in case of a high price difference but not in case of a low price difference.
- H1e.** ...negatively affects purchase intention in case of a high price difference but not in case of a low price difference.
- H1f.** ...negatively affects word-of-mouth intention in case of a high price difference but not in case of a low price difference.

H2. Assuming equal costs for selling a product online or offline, price differentiation with lower online price negatively affects fairness perception, purchase intention and word-of-mouth intention.

Perceived motive for the pricing decisions a retailer takes influences consumers' price fairness perception (Campbell, 1999). Although consumers make assumptions, they are considered to have only limited knowledge and tend to underestimate a seller's costs (Bolton et al., 2003). It will therefore be difficult for consumers to assess seller's actual costs in the channels. In a pre-study with 180 participants we found that the majority of consumers (76%) perceive costs higher offline, but those costs were clearly underestimated. While most consumers notice additional costs due to store rental (90% of respondents) and service personal (86%), the majority does not consider costs for running the store (20%) or store furnishings (10%). This underestimation is likely to reduce acceptance of price differentiation with higher offline prices. In situations with uncertainty why a particular price was set, an explanation can help consumers to better understand the price (Folkes, 1990; Xia et al., 2004). "Procedure justice theory, equity theory, and the principle of dual entitlement all indicate that information that provides reasons for why a certain price is set may influence perceptions of price fairness" (Xia et al., 2004). In case of price differences, providing cost explanations is expected to have a positive impact on consumer reactions (Grewal, Hardesty and Iyer, 2004). It will therefore have a positive effect if a retailer explains its price differentiation policy to buyers. This can happen in two different ways: Directly mentioning the additional costs or stating the additional value provided. The following hypotheses are thus tested:

H3a. In case of price differentiation with lower online price cost-based communication of the price difference has a positive effect on price fairness perception and consumer reactions.

H3b. In case of price differentiation with lower online price value-based communication of the price difference has a positive effect on price fairness perception and consumer reactions.

Search costs influence a transaction's value to buyers (Grewal et al., 2010). Search costs in the dual-channel environment depend to a large extent on product category. Products consist of digital attributes that consumers can easily evaluate on the Internet at a very low cost, and non-digital attributes that can be assessed only physically by visiting the retail store (Lai and Savary, 1999). Commodity (e.g., raw materials) and quasi-commodity products (e.g., consumer electronics) are products that can be easily evaluated on the Internet, while the quality of "look-and-feel" products (e.g., clothes) is difficult to judge online (de Figueiredo, 2000). The Internet thus significantly reduces search costs for products that consist primarily of digital attributes. On the other hand, the offline channel provides consumers the opportunity to examine products in person, which is of value in case of "look-and-feel" products. We test the following hypothesis, choosing a quasi-commodity product over a commodity product, because those products are more associated with retail shopping:

H4. In case of price differentiation with lower online price, the size of the price difference accepted is larger for a "look-and-feel" product than for a quasi-commodity product.

4.4 Methodology

4.4.1 Research method

This research involves three experimental studies, each following a scenario approach. Experimental studies became the predominant form of data collection in marketing research (Baum and Spann, 2011), because they best suit for investigating relations between pre-defined factors as they allow controlling for interferences (Cook and Campbell, 1976). Laboratory experiments fulfill these requirements best as they take place in a controlled

environment (Venkatesan, 1967). Therefore, laboratory experiments were chosen to investigate the effects hypothesized in this research.

4.4.2 Research focus

This research focuses on investigating permanent price differences between a multi-channel retailer's conventional store and online shop for physical goods. Although the largest share of online revenue is generated by retail shopping websites (statista, 2014a), past research has mainly focused on studying service goods (e.g., Choi and Mattila, 2009; Choi, Mattila, Park and Kang, 2009; Paul and Beckmann, 2012). To test effects due to product category as hypothesized in H4 we investigate physical products of two different categories, "look-and-feel" products and quasi-commodity products, which differ in their ability to be assessed online (de Figueiredo, 2000). How the products studied were selected is presented in the individual study sections (chapters 4.5. to 4.6.).

4.4.3 Research scenario

The scenario presented was the same across all three studies. Respondents were presented with a retailer's offline price, which was fix across scenarios and its online price, which was manipulated. Then they were asked to provide their perception of price fairness, purchase intention and intention to WOM. The prices in the scenarios were stated as regular and permanent prices and clearly indicated not to be temporary price promotions to be in scope of this research. To test the effects predicted several scenario assumptions were made. To rule out effects due to additional charges such as shipping, handling or returns when shopping online, the scenario assumed no such additional charges. This is justified given the fact that more than 60% of the top 100 online retailers do not charge for shipping (Internet Retailer, 2008). In the same way, our scenario also assumed no costs of travel when buying in the conventional store. Second, we pointed out that consumers could use the product for the first time the next day as they intend to do, independent from shopping online or offline, to

rule out any effects due to potential earlier availability of the product when shopping offline. By this means, in the case of online shopping we claimed next day delivery at zero costs. With only 3.8% of the leading UK online retailers offering free next-day delivery services, it is still a rather uncommon practice but none that is unrealistic (statista, 2013). Third, we pointed out to consumers that there is no need for concern about security when buying online. In Germany, where this study was conducted, only 24% of online shoppers have concerns about security when shopping online (statista, 2014b). Also considering the constantly high growth rates (statista, 2012) of online shopping shows that consumers do not seem to reject online shopping due to security issues. Finally, payment and returns conditions were assumed to meet respondents' expectations. Summarizing, although we had to make several assumptions to be able to investigate the effects of channel-based price differentiation predicted the scenario presented is a good depiction of today's retail environment.

4.5 Study 1

4.5.1 Research focus

This study explores the role of the direction and the size of the price difference on consumers' acceptance of channel-based price differentiation, operationalized by price fairness perception and WOM intention. Purchase intention was not included as a dependent measure in this study. The product of investigation is a plain white t-shirt. Fashion products are typical "look-and-feel" products and belong to the most important online shopping goods (statista, 2015). A plain white t-shirt was selected as the product of study, because it is a product purchased by both genders and belongs to the most often sold fashion products online according to Amazon's bestseller list. Hypotheses H1a, c, d and f are tested.

4.5.2 Research design and procedures

Participants were presented with a retailer's online and offline prices for a plain white t-shirt and were asked to evaluate whether the price difference was fair and to answer

questions on their intention to spread negative WOM about the retailer because of its differential pricing strategy.³ The between-subjects design consisted of six experimental groups. Data was collected from 298 participants (average age 30.6; 148 males), conveniently sampled via email in Germany. Cell sizes ranged from 45 to 53. The offline price for the t-shirt was fixed at €34.95, based on extensive market research. The online price was manipulated at six levels (€29.95, €30.95€, €32.95, €34.95, €36.95 and €39.95). The experimental conditions included (1) an online price approximately 15% lower (€29.95), (2) an online price approximately 5% lower (€32.95), (3) an online price approximately 5% higher (€36.95) and (4) an online price approximately 15% higher (€39.95) than the corresponding offline price charged by the retailer.⁴ A scenario with equal prices online and offline (€34.95) was included in order to compare the perception of differential pricing strategies to price parity. Additionally, a scenario with an online price of €30.95 was included to control for potential effects due to exceeding the price threshold at €30 with the 15% lower price (29.95€). Analysis revealed that there was no significant difference between the effects at an online price of €30.95 compared to an online price of €29.95. Therefore, the scenario was excluded from further hypothesis testing.

The size of the price difference was manipulated by varying the online price compared to a fixed offline price. On the basis of a pretest with 41 participants and discussions with experts, a 5% price difference was deemed rather small and a 15% price difference rather large. This is in line with findings from Jensen et al. (2003) that consumers expect on average a price difference of 8%-10% between online and offline channels and Huang et al. (2005) who report an 8% price difference to be fair. After a short introduction, participants read the following scenario:

³ Brand and retailer names were not disclosed.

⁴ Prices were rounded in order to have equal price endings.

Please imagine that you want to buy a plain white t-shirt from a well-known brand. In a magazine you come across an advertisement of a retailer that is offering such a t-shirt for €34.95, which is a market price for this product. You can purchase the t-shirt for this price in the retailer's store that you can access easily.

However, later that day, you visit the retailer's online shop and discover that you can buy the same t-shirt online at a price of [€29.95 / €30.95 / €32.95 / €34.95 / €36.95 / €39.95].

Please also assume the following:

- Prices are regular and permanent (i.e. no temporary price promotions)
- Both, for online shopping and buying in the store you can use the product as intended for the first time the next day
- There is no additional cost (i.e. no shipping, handling, returns or travel costs)
- You do not need to be concerned about security when buying online
- Payment and returns conditions meet your expectations

4.5.3 Measures

Participants were asked to evaluate price fairness by responding from 1 (strongly disagree) to 7 (strongly agree) using three statements based on Bolton et al. (2003), Xia et al. (2004) and Bolton et al. (2010): "I consider the retailer's pricing justifiable", "I consider the retailer's pricing fair" and "I consider the retailer's pricing reasonable". These measures were averaged to form an overall perceived price fairness measure ($\alpha=.93$). Negative word-of-mouth intention was measured using the same seven-point Likert-scale, with items developed to fit the context of this research. The statements read "I would discourage people from my social environment from shopping at this retailer" and "I would speak negatively about this retailer on the Internet to make other consumers aware of my experience." These

measures were averaged to form an overall measure for negative word-of-mouth intention ($\alpha=.72$).⁵

Some specific consumer characteristics have been identified that might influence the dependent variables. Thus, they were also assessed at the end of the questionnaire in order to be able to control for them. These potential covariates are (a) general channel preference, (b) price consciousness when shopping online or offline, (c) involvement with fashion products, and (d) amount of money spent on fashion products per month.

4.5.4 Results

Manipulation checks were performed at the end of the questionnaire to validate that the scenario presented was realistic and that respondents understood the underlying price condition. Two statements were used to measure whether respondents perceived the scenario as realistic. On a seven-point Likert-scale from 1 (strongly disagree) to 7 (strongly agree) participants responded to the statements, “The scenario presented is easy to understand” and “The scenario presented seems realistic to me, regardless of the prices stated” (Mahadevan, 2010). Mean answers of 6.21 and 5.20 suggest that the scenario presented was considered easy to understand and realistic. To test whether respondents understood the direction of price differentiation manipulation, they were asked to indicate whether the online price was higher, the offline price was higher or whether the prices presented were identical after they completed the price scenario evaluation. A Chi-square test revealed that the percentage of participants (ranging from 8% to 13%) responding incorrectly did not differ across scenarios, $X^2(1, N=298) = 1.30, p > .05$.

⁵ In order to assure accuracy in the translation of all research material from English to German, professional translators were involved to crosscheck the translations. This applies to all research material used for this article.

To test the effects proposed in hypotheses H1a and c and H1d and f two MANCOVAs were performed, including the covariates discussed earlier. The first MANCOVA tested the effect of price differentiation with higher online price (comparing the scenario with price parity and the scenarios with higher online than offline price) on price fairness perception (PF) and negative word-of-mouth intention (WOM). Results can be found in Table 5 (left side) and revealed a significant main effect of price differentiation on fairness perception and negative WOM intention. No significant effects were found for the covariates. Planned contrasts revealed that in accordance with hypothesis H1a compared to price parity (M=4.83), mean scores for price fairness were significantly lower for both the 5% (M=3.73, $p < .01$) and the 15% price difference (M=3.30, $p < .001$) scenarios. For word-of-mouth intention mean scores were significantly higher than for price parity (M=1.37) for the 15% price difference (M=2.60, $p < .001$) and marginally significantly higher for the 5% price difference (M=1.81, $p = .063$).

The second MANCOVA tested the effect of the scenario with price parity and the two scenarios with lower online price on price fairness perception and negative WOM. Results revealed no significant effects for the covariates either as can be seen in Table 5 (right side). Neither was there a significant main effect of the price differentiation on fairness perception or negative word-of-mouth intention. For an overview of the mean differences found in study 1, please see Table 6.

Table 5: Study 1 MANCOVA results for both main effects and covariates

	Higher price online (parity vs. +5% online vs. +15% online)						Lower price online (parity vs. -5% online vs. -15% online)					
	Price fairness			Negative word-of-mouth intention			Price fairness			Negative word-of-mouth intention		
	df	F	P	df	F	P	df	F	p	df	F	p
Price consciousness offline	1	0.039	.843	1	1.505	.222	1	0.426	.515	1	0.644	.424
Price consciousness online	1	0.345	.558	1	0.307	.581	1	1.383	.242	1	0.122	.728
Channel preference	1	0.010	.922	1	2.074	.152	1	0.358	.550	1	1.507	.222
Money spent	1	0.014	.905	1	0.943	.333	1	3.409	.067	1	1.074	.302
Involvement	1	0.737	.392	1	1.237	.268	1	0.242	.624	1	0.359	.550
Price differentiation	2	8.799*	<.001	2	10.68**	<.001	2	0.393	.676	2	2.556	.081
Error	144			144			142			142		
Total	152			152			150			150		

*significant at < .05; ** significant at <.001

Previous research has demonstrated that price unfairness perception influences consumer reactions such as shopping intention (e.g., Campbell 1999). Therefore, to test whether the significant effect of the price differentiation with higher online prices on word-of-mouth intention we found is influenced by price fairness perception, we conducted a mediation analysis. We performed 2,500 bootstrap resamples using Preacher and Hayes's (2004, 2008) SPSS macro, as recommended by Zhao, Lynch, and Chen (2010). We tested whether price fairness mediates the observed effect of the different price scenarios on negative word-of-mouth intention. The mean indirect effect is significant ($a \times b = .102$, $p < .05$), with a 95% confidence interval excluding zero (.012 to .225). The direct effect c (.512) from direction of the price differentiation to negative word-of-mouth intention is also significant ($p = .001$). According to Zhao, Lynch, and Chen (2010) we found a complementary mediation

indicating that the proposed mediation is in place but it is likely that there is another omitted mediator. Following Iacobucci (2007), 16% of the observed effect on word-of-mouth intention can be explained by price fairness.

Table 6: Study 1 mean (SD) results across experimental conditions

	Offline price > online price		Price parity	Online price > offline price	
	5% PD* (n=52)	15% PD (n=45)	Control (n=53)	5% PD (n=48)	15% PD (n=51)
Price fairness	4.90 (1.91)	4.67 (1.88)	4.83 (1.91)	3.73 (1.82)	3.30 (2.11)
Negative word-of-mouth intention	1.67 (1.09)	1.83 (1.00)	1.37 (0.69)	1.81 (1.17)	2.60 (1.73)

Note: All ratings are on seven-point scales; Standard deviation in parentheses *PD=Price difference

4.5.5 Discussion

Results from Study1 show that price differentiation with higher online price is seen as unfair per se, maybe because of the negative perception through price discrimination and not pricing the channels according to costs. A significant increase in negative WOM intention can be seen for a larger price difference (15%), the effect is also marginally significant for a small (5%) price difference. This result is a valuable insights, given the fact that the majority of retailers engaging in channel-based price differentiation follow a mixed strategy pricing part of their products with a higher price online (Wolk and Ebling, 2010).

Price differentiation with lower online prices on the other hand did not have a negative effect on fairness perception and the intention to spread negative WOM about the retailer, independent of the size of the price difference. Contrary to predictions in H1d and f there was no negative effect of the large price difference. A possible explanation is that consumers consider a 15% price difference still appropriate given the additional value provided offline.

The results also reveal that consumers unmistakably perceive price parity as fair (see Table 6). Also, descriptively, intention to spread negative WOM was lowest for those

subjects not facing price differentiation of any kind. Although overall consumer welfare is higher if a retailer reduces prices online, consumers do not value price parity as less fair. An explanation may be that consumers do not regard the lower price in the online channel as a discount, but instead consider the higher price in the offline channel as a premium by using the lower price as an anchor. This finding is contrary to Huang et al.'s (2005) finding that selling products online for the same price as they are sold through conventional channels is considered unfair.

In Study 2 we will explore the role of consumers' implicit assumptions on the seller's costs in the different channels on fairness perception and reaction.

4.6 Study 2

4.6.1 Research focus

Study 2 tests H1a-f for a quasi-commodity product. Consumer electronics are typical quasi-commodity products and belong to the most successful product categories in online sales (statista, 2015). An MP3-player was chosen as the product of study, because it is a product broadly used and a popular consumer electronics product among Amazon's bestsellers. Additionally, Study 2 aims to shed light on how consumers' implicit assumptions about the retailer's costs in the different channels influence fairness perception and reactions to channel-based price differentiation by testing H2.

4.6.2 Research design and procedures

Study 2 uses the same scenario as Study 1, but described buying an MP3-player and involved a condition with a note about the retailer's costs⁶. Participants were conveniently sampled via email and randomly assigned to experimental conditions. A 5 (price scenario) x 2 (cost cue) between-subjects design was employed. Cell sizes ranged from 32 to 39 across ten experimental conditions. Altogether, 360 answers (average age 26.4; 153 males) were

⁶ Brand and retailer names were not disclosed.

collected. The scenario described buying an MP-3 player and participants were presented with a retailer's online and offline price. The offline price for the MP3-player was fixed at €39.99. The online price was manipulated at five levels (€33.99, €37.99, €39.99, €41.99 and €45.99)⁷. The conditions with differentiated prices included an online price (1) 15% lower (€33.99), (2) 5% lower (€37.99), (3) 5% higher (€41.99) and (4) 15% higher (€45.95) than the offline price charged by the retailer.⁸ Prices were chosen on the basis of market research on bestselling MP3-players at Amazon.com and other major consumer electronics retailers in Germany. Prices were rounded to .99 price endings, as this is a more common practice in consumer electronics pricing compared to the .95 price endings preferred in the fashion industry in Germany. As price endings influence consumers' price perceptions of goods (Kleinsasser and Wagner, 2011), we ruled out any effects due to uncommon price endings.

The scenario read identical to the scenario in Study 1. Participants in the cost cue condition additionally received a note about the retailer's costs, which read as follows:

Please assume that the costs of selling this product are the same for the retailer in the store and in the online shop.

4.6.3 Measures

After reading the scenario, consumers were asked to respond to scaled dependent variable measures of price fairness, purchase intention and negative word-of-mouth intention. The same measures for price fairness ($\alpha=.94$) and negative WOM intention ($\alpha=.70$) as in Study 1 were used. Purchase intention was measured using a seven-point Likert-scale from 1 (strongly disagree) to 7 (strongly agree) using four statements according to Dodds, Monroe and Grewal (1991) but adjusted to the context of this research. The statements read "The

⁷ Prices were rounded in order to have equal price endings.

⁸ This is in line with Jensen et al. (2003) who find that on average consumers expect a price difference of 8%-10% between online and offline channels.

likelihood of purchasing the product at this retailer is high”, “At these prices I would consider buying the product at this retailer”, “The probability that I would consider buying the product at this retailer is high” and “My willingness to buy the product at this retailer is high”. The measures were averaged to form an overall measure on purchase intention ($\alpha=.94$).

4.6.4 Results

The same manipulation checks as for Study 1 were performed to validate that the scenario presented was realistic and respondents understood the price condition. Questions on whether the scenario presented was easy to understand and realistic demonstrated high mean responses of 5.53 and 4.80 (as measured on a 7-point Likert scale). The Chi-square test revealed that the percentage of respondents (ranging from 3% to 13%) who did not understand the direction of price differentiation manipulation did not differ across scenarios, $X^2(1, N=360)=5.21, p > .05$.

To test the effects proposed in hypothesis H1a-f two MANCOVAs including the same covariates as in Study 1 were performed. First, a 3 (price parity vs. 5% higher online price vs. 15% higher online price) x 2 (cost cue vs. no cost cue) MANCOVA was conducted. Results are displayed in Table 7. As expected, we found a significant main effect of price differentiation on fairness perception, purchase intention as well as negative WOM intention. The main effect of the cost cue and the interaction effect of price scenario and cost cue were not significant on either of the three dependent measures. Furthermore, regarding the covariates, the analysis revealed a significant effect of channel preference on purchase intention, but not on price fairness or negative WOM intention. Neither of the other covariates was significantly related to the dependent variables. Planned contrasts were conducted for conditions without cost cue and revealed that in accordance with hypothesis H1a compared to price parity ($M=5.21$), mean scores for price fairness were significantly lower for both the 5% ($M=3.22, p<.001$) and the 15% price difference ($M=3.31, p<.001$)

scenarios. The same was true for purchase intention. Compared to price parity (M=5.35), mean scores were significantly lower for both the 5% (M=4.27, $p < .01$) and the 15% price difference (M=4.47, $p < .05$) scenarios. For word-of-mouth intention mean scores were significantly higher for the 15% price difference (M=2.55, $p < .01$) but not the 5% price difference (M=1.91, $p = .716$) than for price parity (M=1.76).

Table 7: Study 2 MANCOVA results for main effects, interactions, and covariates for higher prices in the online shop

	Higher price online (parity vs. +5% online vs. +15% online)								
	Price fairness			Negative word-of-mouth intention			Purchase Intention		
	df	F	p	df	F	p	df	F	p
Price consciousness offline	1	0.185	.667	1	3.118	.079	1	0.012	.912
Price consciousness online	1	0.481	.489	1	0.009	.924	1	0.029	.864
Channel preference	1	0.944	.332	1	0.132	.717	1	7.371*	<.01
Money spent	1	0.307	.580	1	0.000	.994	1	1.585	.209
Involvement	1	0.037	.848	1	0.052	.820	1	1.634	.203
Price differentiation	2	20.241**	<.001	2	6.081*	<.01	2	9.578**	<.001
Cost cue	1	0.477	.491	1	0.424	.516	1	0.001	.979
Price differentiation × cost cue	2	0.639	.529	2	1.597	.205	2	0.765	.467
Error	202			202			202		
Total	213			213			213		

*significant at $< .01$; ** significant at $< .001$; total df = 213; error df = 202

Second, a 3 (price parity vs. 5% lower online price vs. 15% lower online price) x 2 (cost cue vs. no cost cue) MANCOVA was conducted. The results can be found in Table 8.

The analysis revealed a significant main effect of the price differentiation condition on fairness perception, purchase intention, and negative word-of-mouth intention. The main effect of the cost cue and the interaction effect of price scenario and cost cue were not significant on either of the three dependent measures. None of the covariates had a significant effect either. Planned contrasts were conducted for conditions without cost cue and revealed that in accordance with hypothesis H1d mean scores for price fairness were significantly

Table 8: Study 2 MANCOVA results for main effects, interactions, and covariates for lower prices in the online shop

	Lower price online (parity vs. -5% online vs. -15% online)								
	Price fairness			Negative word-of-mouth intention			Purchase Intention		
	df	F	p	df	F	p	df	F	p
Price consciousness offline	1	0.014	.904	1	1.152	.284	1	0.251	.617
Price consciousness online	1	0.813	.368	1	0.040	.841	1	3.374	.068
Channel preference	1	0.106	.745	1	2.630	.106	1	0.285	.594
Money spent	1	0.522	.471	1	2.345	.127	1	1.167	.281
Involvement	1	0.011	.916	1	0.219	.640	1	0.882	.349
Price differentiation	2	7.362*	<.01	2	7.487*	<.01	2	9.245**	<.001
Cost cue	1	0.067	.796	1	3.620	.058	1	0.241	.624
Price differentiation × cost cue	2	0.927	.397	2	0.157	.855	2	0.097	.908
Error	208			208			208		
Total	219			219			219		

*significant at < .01; ** significant at <.001; total df = 219; error df = 208

lower for the 15% (M=3.90, $p<.01$) but not for the 5% price difference (M=4.62, $p=.165$) scenarios compared to price parity (M=5.21). The same was found for purchase intention. Mean scores for purchase intention were significantly lower for the 15% (M=4.30, $p<.001$) but not for the 5% price difference (M=4.83, $p=.200$) scenarios compared to price parity (M=5.35). Similarly, for word-of-mouth intention mean scores were significantly higher for the 15% price difference (M=2.46, $p<.05$) but not the 5% price difference (M=2.31, $p=.111$) than for price parity (M=1.76).

Table 9: Study 2 mean (SD) results across experimental conditions

	Offline price > online price		Price parity	Online price > offline price	
	5% PD*	15% PD		5% PD	15% PD
W/o cost cue	n=36	n=34	n=36	n=37	n=37
Price fairness	4.62 (1.81)	3.90 (1.96)	5.21 (1.93)	3.23 (1.84)	3.32 (1.98)
Purchase intention	4.84 (1.52)	4.30 (1.78)	5.35 (1.36)	4.27 (1.50)	4.47 (1.67)
Negative word-of-mouth intention	2.31 (1.49)	2.46 (1.54)	1.76 (1.00)	1.91 (1.12)	2.55 (1.37)
Cost cue	n=39	n=38	n=36	n=32	n=35
Price fairness	4.12 (1.77)	4.24 (1.60)	5.13 (1.78)	3.75 (1.75)	3.39 (1.97)
Purchase intention	4.54 (1.54)	4.20 (1.57)	5.35 (1.59)	4.56 (1.40)	4.19 (1.73)
Negative word-of-mouth intention	1.93 (.97)	2.23 (1.14)	1.50 (.87)	2.28 (1.38)	2.14 (1.55)

Note: All ratings are on seven-point scales; Standard deviation in parentheses *PD=Price difference

To test hypothesis H2 (predicting lower fairness ratings for differentiation with lower online prices when costs are assumed to be similar) additional contrast analysis were conducted for conditions that included the cost cue in the scenario description. Mean scores for price fairness were significantly lower for the 15% (M=4.24, $p<.05$) and the 5% price difference (M=4.12, $p<.05$) scenarios compared to price parity (M=5.13). The same was found for purchase intention. Mean scores for purchase intention were significantly lower for the 15% (M=4.20, $p<.01$) and for the 5% price difference (M=4.54, $p<.05$) scenarios compared to price parity (M=5.35). For word-of-mouth intention mean scores were

significantly higher for the 15% price difference ($M=2.23$, $p<.05$) but not the 5% price difference ($M=1.93$, $p=.181$) than for price parity ($M=1.50$). The results thus confirm our hypothesis for price fairness and purchase intention but only partly for word-of-mouth intention. For an overview of the mean differences found in study 2, please see Table 9.

4.6.5 Discussion

Study 2 shows price differentiation with higher online price leads to significantly lower perceived fairness and purchase intention than price parity. Consumers oppose even a small price difference (i.e., 5%). Regarding price differentiation with higher offline prices, the extent of the price difference is a crucial parameter as predicted in hypothesis H1d-f. Our results demonstrate that while consumers accept a relatively small price difference (i.e., 5%) a larger price difference (i.e., 15%) leads to significantly lower perceived fairness and purchase intention and a significantly higher negative WOM intention than price parity.

Study 2 also demonstrates that price differentiation with higher offline price is accepted only in a scenario that does not assume equal costs to the retailer for selling a product online or at a conventional store. If equal costs are assumed, consumers do not accept price differentiation with higher offline prices, even if the price difference is as small as 5%, compared to conditions without cost cue. This provides evidence that consumers consider the offline channel to be more costly for sellers than the online channel, which makes them accept price differentiation with lower online price. The positive effect of pricing the channels according to costs seems to counterbalance the negative perception generally associated with price discrimination. Discriminating prices at reasonable extent (in a way that it can be explained by the difference in costs between the channels) thus becomes feasible without negative effect on consumers' perception and reactions.

The fact that retailers might control how consumers view their costs and prices in different channels, makes the results particularly interesting for multi-channel retailers. We address this issue in Study 3.

4.7 Study 3

4.7.1 Research focus

In Study 3 we explore whether retailers can increase consumers' acceptance of channel-based price differentiation with lower online prices by providing consumers with an explanation for the price difference referring to the cost difference between the channels. Following the strong indications in studies 1 and 2 that consumers per se do not accept price differentiation with higher online price, Study 3 focuses on price differentiation with lower online price only. Compared to the shopping goods studied in Study 1 and Study 2 we investigate a specialty good in Study 3. A sofa was chosen as a specialty good purchased infrequently and requiring a comparably high investment.

4.7.2 Research design and procedures

The same scenario approach as in studies 1 and 2 was used in Study 3. 322 participants (average age 26.4; 180 males) were conveniently sampled via email and randomly assigned to 3 (price scenario) x 3 (communication of the price difference) experimental conditions. Cell sizes ranged from 30 to 40. The offline price for the sofa was fixed at €599, which is a market price for such a product. A price at the lower end of the largest price category sold on Amazon.com was selected. The online price was manipulated at three levels: €569 for the 5% price difference condition and €509 for the 15% price difference condition. In the parity condition the online price was €599 and thus identical to the offline price.⁹ Delivery of the sofa was free regardless of buying it in the retailer's conventional store or online shop and conditions of delivery were the same for online and offline purchases.

⁹ Prices were rounded in order to have equal price endings.

Participants were presented with a scenario that was identical to the scenario in studies 1 and 2 but included conditions in which respondents received a note about the retailer's additional costs selling the sofa in the conventional store. The note was either cost-based or value-based and read as follows¹⁰:

Cost-based communication condition: The retailer communicates the following about its prices: Due to higher costs for rental, sales and service personnel, and store equipment prices in our store may be higher than prices in the online shop.

Value-based communication condition: The retailer communicates the following about its prices: Since we offer our customers in the store greater service in the form of advice from sales and service staff, a more elaborate presentation of goods as well as a greater shopping experience than in our online shop, prices in our store may be higher than prices in the online shop.

We defined the manipulations for the cost- and value-based communication strategies based on findings from previous research. Theorists typically assume selling online to produce cost advantages, especially in a setting without costs for shipping, handling or returns (e.g., Anderson, Day and Rangan, 1997; Ratchford, 2009; Zhang et al., 2010). Ratchford (2009) argues that offline sales generate additional expenses in the form of inventory costs and costs for sales personnel. Similarly, Zhang et al. (2010) mention fixed costs such as labor costs, real estate investments and utilities when it comes to offline sales. In the cost-based communication condition we therefore point out the retailer's additional costs due to rental, sales and service personnel and store equipment. A pretest with 180 participants further supported this manipulation, revealing that the majority of respondents did not consider costs for running the store (80% of respondents) or store furnishings (90%).

¹⁰ Brand and retailer names were not disclosed.

In accordance with Kacen, Hess and Chiang's (2002) findings that compared to conventional stores, online stores are perceived as having disadvantages with respect to providing a social experience, assistance of salespeople and post-purchase service, we emphasized the additional value provided through greater service in the form of advice from sales and service staff, a more elaborate presentation of goods and a greater shopping experience in the value-based communication condition.

4.7.3 Measures

After reading the scenario, consumers were asked to respond to scaled dependent variable measures of price fairness, purchase intention and negative WOM intention. The same measures as in Study 2 were employed and averaged to form an overall measure on price fairness ($\alpha=.93$), purchase intention ($\alpha=.95$) and negative WOM intention ($\alpha=.75$).

4.7.4 Results

Again the same manipulation checks were performed. Questions on whether the scenario presented was easy to understand and realistic demonstrated high mean responses of 5.67 and 5.23 (on a 7-point Likert scale). The Chi-square test revealed that the percent of respondents (ranging from 3% to 6%) who did not understand the direction of price differentiation manipulation did not differ across scenarios, $X^2(1, N=307)=1.41, p > .05$.

A 3 (price parity vs. 5% higher online price vs. 15% higher online price) x 3 (no communication vs. cost-based communication vs. value-based communication) MANCOVA was conducted. As can be seen in Table 10, we found a significant main effect of price scenario on price fairness, but not on purchase intention or negative word-of-mouth intention. The main effect of the communication of a potential price difference and the interaction effect of price differentiation and type of communication were not significant. Several of the covariates proved to be effective. Price consciousness offline significantly influenced

purchase intention, but neither price fairness perception nor negative word-of-mouth intention. Price consciousness online had an influence on purchase intention and negative word-of-mouth intention but not on price fairness perception. Channel preference significantly influenced price fairness perception but not purchase intention or negative word-of-mouth intention. There was no significant effect through involvement or money spent on furniture during the last year.

Table 10: Study 3 MANCOVA results for main effects, interactions, and covariates for higher prices in the online shop

	Higher price online (parity vs. +5% online vs. +15% online)								
	Price fairness			Negative word-of-mouth intention			Purchase Intention		
	df	F	p	df	F	p	df	F	p
Price consciousness offline	1	0.806	.370	1	1.106	.294	1	5.760*	<.05
Price consciousness online	1	1.038	.309	1	5.836*	<.05	1	8.341**	<.01
Channel preference	1	4.782*	<.05	1	3.842	.051	1	2.844	.093
Money spent	1	0.261	.610	1	0.323	.570	1	0.629	.428
Involvement	1	0.066	.797	1	0.279	.598	1	0.187	.666
Price differentiation	2	6.691**	<.01	2	0.590	.555	2	0.723	.486
Type of communication	2	0.099	.906	2	2.837	.060	2	0.458	.633
Price differentiation × type of communication	4	1.530	.193	4	0.111	.979	4	1.307	.267
Error	294			294			294		
Total	308			308			308		

*significant at < .05; **significant at < .01; total df = 308; error df = 294

Planned contrasts were conducted to test the effects proposed in H1d-f. Mean scores for price fairness were significantly lower for the 15% price difference ($M=4.30$, $p<.05$) than for price parity ($M=5.41$) in conditions without communication of a potential price difference as predicted. But contrary to H1d mean scores were also significantly lower for the 5% price difference ($M=4.43$, $p<.05$). Mean scores for purchase intention and intention to spread negative word-of-mouth about the retailer were not significantly different from price parity (PI: $M=5.10$, WOM: $M=1.96$) for the 15% (PI: $M=4.67$, $p=.346$; WOM: $M=2.15$, $p=.744$) and the 5% (PI: $M=4.77$, $p=.529$; WOM: $M=2.09$; $p=.849$) price differences. Contrast analyses were also performed to evaluate the effects of value- or cost-based communication predicted in hypothesis H3a and H3b. Results demonstrated that value-based communication of a potential price difference significantly increases fairness perception ($M=5.24$, $p<.05$) and purchase intention ($M=5.37$, $p<.05$) in case of a 5% price difference compared to not communicating the potential price difference ($M_{PF}=4.43$, $M_{PI}=4.77$) which supports our hypothesis. However, no effect was found on negative word-of-mouth intention ($p=.139$). For neither of the three dependent measures the effect however was found for the 15% price difference (PF: $p=.734$, PI: $p=.790$, WOM: $p=.303$). Contrary to what was predicted no positive effect on fairness perception, purchase intention and word-of-mouth intention was found if the potential price difference was communicated based on costs for the 5% (PF: $p=.820$, PI: $p=.751$, WOM: $p=.128$) and the 15% price difference (PF: $p=.904$, PI: $p=.464$, WOM: $p=.264$). The descriptive statistics of the variables in Study 3 can be found in Table 11.

Table 11: Study 3 mean (SD) results across experimental conditions

	Offline price > online price		Price parity
	5% PD*	15% PD	Control
W/o communication	n=39	n=34	n=36
Price fairness	4.43 (1.99)	4.30 (1.55)	5.41 (1.63)
Purchase intention	4.77 (1.30)	4.67 (1.24)	5.10 (1.61)
Negative word-of-mouth intention	2.09 (1.34)	2.15 (1.37)	1.96 (1.27)
Cost-based communication	n=38	n=34	n=30
Price fairness	4.62 (1.73)	4.43 (1.70)	5.38 (1.79)
Purchase intention	4.92 (1.68)	4.92 (1.46)	5.18 (1.23)
Negative word-of-mouth intention	1.63 (1.24)	1.79 (1.12)	1.64 (.90)
Value-based communication	n=37	n=34	n=40
Price fairness	5.24 (1.54)	4.15 (1.92)	4.86 (1.65)
Purchase intention	5.37 (1.22)	4.79 (1.61)	4.74 (1.38)
Negative word-of-mouth intention	1.70 (.93)	1.86 (1.08)	1.89 (1.13)

Note: All ratings are on seven-point scales; Standard deviation in parentheses *PD=Price difference

We additionally tested whether there is a negative effect if a potential price difference is communicated by the retailer but in the end no such price difference is in place. Again contrasts were calculated. For both, value- (PF: $p=.379$, PI: $p=.475$, WOM: $p=.529$) and cost-based (PF: $p=.840$, PI: $p=.774$, WOM: $p=.224$) communication of a potential price difference mean scores were not significantly different from the scenario without communication for all three dependent measures.

4.7.5 Discussion

Contrary to what was predicted in H1b, Study 3 shows that perceived price fairness is significantly lower with price differentiation than with price parity even for the 5% price difference. One possible explanation may be that consumers consider the relatively high absolute price difference (€30) too high to be explained by the difference in costs. Another reason may be that the offline channel is not considered of high additional value when buying

a sofa. In contrast to price fairness, there was no negative effect of price differentiation with lower online price on purchase intention and negative WOM intention, independent of the size of the price difference. A possible reason behind this may be the fact that delivery was free of charge in our scenario, which may have led consumers to purchase the product although the differentiation of the product price is generally perceived unfair. Possible, respondents might have had self pick-up in mind when considering shopping in the conventional store.

In Study 3 we also find evidence that retailers can influence consumers' acceptance of channel-based price differences by actively explaining why a price difference may exist. We found that in the case of a small price difference (i.e. 5%), value-based communication through emphasizing the additional value provided offline has a significant positive effect on fairness perception. We could not observe a significant positive effect if the price difference was rather large (i.e. 15%). An explanation for this may be that the 15% price difference is perceived too high to be explained by the difference in value provided. In this case an explanation is unlikely to help to foster acceptance. Furthermore, a strong tendency towards higher purchase intention and lower negative WOM intention is observed. Given these results we conclude that value-based communication has a greater positive effect than cost-based communication.

Another finding of interest for managers of multi-channel firms is that we could not find a significant negative influence on consumer perception if a product is not offered at a lower price online although the retailer announces that the online price might be lower due to higher costs or higher value provided in the offline channel. If more detailed research shows the same, this would imply that the positive effect of explaining a potential price difference

can be leveraged without harming the retailer if such a price difference is effectively not in place, e.g. for part of its assortment priced at parity.

4.8 Cross-study comparison

In the following we compared Study 1 and Study 2 results to give an indication on whether product category affects the acceptance of channel-based price differentiation as predicted in H4. We excluded Study 3 from the comparison because due to the high difference in price levels it is not comparable to the first two studies. We are also aware that there are several limitations to such a cross-study comparison. First, the samples were not the same. Thus, we cannot assume any difference we find to be solely attributable to our experimental manipulations. Second, the prices observed, although quite similar, were not identical. However, please note that there were no differences in socio-demographics between studies. Despite these limitations, discussing hypothesis H4 on the basis of comparing the studies' results can be fruitful in pointing at valuable new avenues for further, more systematic scientific inquiry.

For this comparison we considered data from Study 1 (n=150) and Study 2 data in conditions without cue on costs (n=106) for scenarios with lower online than offline price. In Study 1 the product of investigation was a “look-and-feel” product (fashion product: t-shirt); Study 2 tested a quasi-commodity product (consumer electronics: MP3-player). For the “look and feel” product in Study 1 there was no significant main effect of price differentiation (which in all of the following considerations means differentiating by setting a lower price in the online shop) on fairness perception ($F(2, 149)=0.393, p=.676$) or negative WOM intention ($F(2, 149)=2.556, p=.081$). Neither the 5% nor the 15% price difference negatively affected fairness perception or WOM intention compared to price parity. Looking at the results in Study 2, mean scores for price fairness were significantly lower for the 15% ($M=3.90, p<.01$) but not for the 5% price difference ($M=4.62, p=.165$) scenarios compared to

price parity (M=5.21). Similarly, for WOM intention mean scores were significantly higher for the 15% price difference (M=2.55, $p<.05$) but not the 5% price difference (M=1.91, $p=.111$) than for price parity (M=1.76). The same was found for purchase intention which was not included as a dependent measure in Study 1. Mean scores for purchase intention were significantly lower for the 15% (M=4.24, $p<.001$) but not for the 5% price difference (M=4.83, $p=.200$) scenarios compared to price parity (M=5.35).

We value these insights as a first indication that product category seems to influence consumers' acceptance of channel-based price differentiation with lower online prices as predicted. The evidence of these two studies points in a direction of greater acceptance of price differentiation for "look-and-feel" products than for quasi-commodity products. However, to get a clearer picture on this effect substantial future research is necessary.

4.9 Discussion, implication and limitation

4.9.1 Discussion of findings

Three studies investigated consumers' acceptance of permanent channel-based price differentiation. Studies 1 and 2 demonstrated that customers are not willing to accept a retailer charging higher prices in its online shop than in its conventional offline store for identical physical goods. Price differentiation with lower online prices on the other hand was rather well accepted by consumers as indicated by all three studies. Comparing the results of the studies, the size of the price difference tolerated seems to depend on product category. Our results indicate that the price difference between the offline and online price can be higher for a "look-and-feel" than for a quasi-commodity product, remarking that comparing results across our studies has methodological limitations.

Study 2 shed light on the cognitive processes underlying consumer fairness perception and behavior in an encounter with channel-based price differentiation. Ruling out any

assumptions on cost differences by providing information on the actual costs to the retailer (i.e., taking away the justification of differentiated prices by stating that costs are equal in both channels) diminished acceptance of price differentiation. Thus, we conclude that consumers assume higher costs to the retailer in the offline channel. This effect counterbalancing negative perceptions generally evoked through practices of price discrimination then results in similar fairness perception of price differentiation with lower online price at appropriate level and price parity. The research at present however provides only initial directions for this hypothesis; comprehensive future research is necessary to further investigate the effects coming together.

Finally, Study 3 showed that providing a rationale for a price difference between the online and offline channel by communicating information on the difference in costs between the channels can have a positive impact on fairness perception. This however depends on the extent of the price difference and the way in which the cost difference is communicated. Our results indicate that communicating the higher costs in the offline channel through emphasizing the additional value provided to consumers has a more positive effect on fairness perception than directly mentioning the additional costs incurred by offline sales. This effect was found for a comparably small price difference. Further exploring these findings would be of great interest to better understand ways to foster consumers' acceptance of price differentiation.

4.9.2 Theoretical implications

The findings in this research enrich current understanding of pricing in the online-offline retail environment. Compared to previous research demonstrating selling products online for the same price as through conventional channels is considered unfair (Huang et al., 2005) or that consumers expect lower prices online (Jensen et al., 2003), this research shows opposing results for the context of channel-based price differentiation. Results of this

research demonstrate that consumers do not generally consider price parity between the online and offline channel of a multi-channel retailer as unfair. Nor do they necessarily consider lower prices to be fairer. We show that consumers' implicit assumptions on and information provided about costs to the retailer as well as the way price differences are communicated play a crucial role as determinants of consumers' reaction when facing channel-based price differences. In addition, this research confirms the common assumption that consumers do not accept price differentiation with higher prices online for different product categories. Furthermore, this research fills a gap by providing compelling insights across different types of products.

4.9.3 Implications for practice

The findings in this paper also have important managerial implications as they challenge retailers' thinking about channel-based price differentiation. Managers need to actively manage consumers' fairness perceptions by implementing favorable marketing tactics (Nguyen and Klaus, 2013). Given the results, price differentiation with higher offline prices can be a feasible option for multi-channel retailers to increase profits without destroying consumers' fairness perceptions. Furthermore, we demonstrated that it is important to make this decision considering product category effects. Moreover, if retailers decide to pursue channel-based price differentiation with higher offline prices, our evidence suggests they should communicate their policy by emphasizing the additional value provided to consumers with offline sales. This can have a positive impact on consumers' fairness perceptions in case of relatively small price differences. Finally, one should recognize that communicating a potential price difference according to our results does not have a negative impact on the intention to purchase products that are not price differentiated but priced at parity.

4.9.4 Limitations

Despite the robustness of the findings that consumers accept price differentiation with higher offline prices across three studies, this research has certain limitations. Further research is needed to more deeply explore the effects proposed in this research.

One limitation of our studies is the fact that the scenario presented made several assumptions regarding the retail environment. Specific assumptions were made regarding the shopping context, e.g. the scenario presented did not involve additional costs due to shipping, handling and returns consumers may have to pay when shopping online or potential risks in terms of security. These assumptions were made in a way to control for effects that might have influenced the effects to study but to still mirror the online retail environment in a realistic way. The retail environment however is continuously changing which may make the results presented viable only for limited time. Moreover, this research is based on a very specific purchase situation. It may therefore be difficult to generalize the results. The way consumers were presented the different prices in the different channels was again designed to investigate the effects proposed in the best way possible, but the situation described may seem rather artificial. Results may differ in another purchase context. Furthermore, this research investigated the extent of the price difference, the motive for and communication of channel-based price differentiation and product category as important factors of influence on consumers' fairness perceptions and reactions, but following theory on price fairness there are several other factors and mechanisms in place that are expected to play a role. Researchers should continue following the concept of price fairness provided by Xia et al. (2004) and further investigate effects due to e.g., the buyer-seller relationship stage and trust, norm perception and meta-knowledge of the market place, further consumer factors, retailer factors, situational factors and the competitive situation online and offline. Finally, another limitation of this research is its focus on German consumers. Due to differences in retailer

behavior between e.g., European and American retailers, the findings presented in this research might not be easily transferable to other markets.

5 Conclusion

The basis for this dissertation was the fact that multi-channel pricing became one of the top priorities for retailers. Both researchers as well as practitioners gave support for the importance of further exploring how multi-channel retailers should deal with prices if they operate both an online shop as well as conventional retail stores. More concrete, researchers asked to deeper investigate cross-channel pricing and especially the interaction of channel-based price differentiation and consumer behavior; and managers of multi-channel companies confirmed this lack of consumer insights saying they refrain from channel-based price discrimination because of fear of negative consumer reactions during qualitative expert discussions we conducted prior to this research. Despite the high relevance of the topic, only few researchers have drawn attention to it so far. Therefore, the aim of this research was to provide a better understanding of cross-channel pricing both from a theoretical and an empirical perspective. We believe this work makes two central contributions:

First, it provides a comprehensive review of scientific research on cross-channel pricing, based on an article by Fassnacht and Unterhuber (2015a) published in the *International Journal of Business Research (IJBR)*. In this paper we examined the existing literature on cross-channel pricing and found three different streams of research: (1) Theoretical research assessing how to optimally deal with pricing across different channels, (2) observational research studying how retailers deal with pricing across online and offline channels today and (3) empirical research exploring consumer behavior towards different cross-channel pricing strategies, namely uniform pricing and channel-based price differentiation. Altogether 20 theoretical and empirical papers have been identified and analyzed in depth. The findings of all papers are summarized and knowledge gaps are displayed. Findings show that channel-based price differentiation can be a beneficial marketing instrument for multi-channel retailers, but it is a complex issue with various

factors considered to impact its outcome. Many of them have not yet been explored. In particular, our literature review reveals a lack of empirical research studying the acceptance of channel-based price differentiation from a consumer's point of view. Following the literature review, we worked out an in-depth agenda for future research. We derive and point out fruitful and uncovered directions for future research with direct managerial implications for multi-channel retailers to improve the basis of decision-making. For each research stream identified we present concrete avenues to enhance current understanding. Focusing on empirical research we develop a broad list of factors considered to influence consumers' acceptance of different cross-channel pricing strategies, such as the direction of the price difference, the size of the price difference, transaction similarity, product category, the motive behind the retailer's pricing, norm perception or metaknowledge of the market place. We discuss each of the factors and define variables to test. Summarizing, our paper contributes to conceptual research by providing a comprehensive overview of the existing research on pricing in the context of online and offline distribution channels and by pointing out avenues for future research.

The second part of this dissertation explores the impact of channel-based price differentiation for physical goods on key consumer reactions and is based on an article by Fassnacht and Unterhuber (2015b) accepted for publication at the *Journal of Retailing and Consumer Services (JRCS)*. In three experimental studies we provide evidence that channel-based price differentiation for physical goods is feasible and does not necessarily lead to negative consumer reactions. We also shed light on the cognitive effects that drive consumer behavior in an encounter with channel-based price differentiation. Our findings reveal that the extent of the price difference accepted depends on product category. Across two different studies we show that a small price difference (5%) is perceived fair and does not trigger negative consumer reactions for both a "look and feel" (t-shirt) and a quasi-commodity

product (MP3-player), but a comparably large price difference (15%) is perceived unfair and implies negative consumer reactions in case of a quasi-commodity but not a “look and feel” product. A possible explanation lies in the difference in product characteristics and subsequently the difference in value provided by the channels for shopping the different categories. Furthermore, we provide evidence for the interplay of two cognitive effects when facing channel-based price differentiation: (a) Implicit assumptions on higher costs to retailers running a brick-and-mortar store that might provide a justification for differing prices versus (b) a general negative attitude and unfairness perception of price discrimination for the exact same product. According to our findings, the positive effect of pricing the channels according to costs in case of price differentiation with lower online prices seems to partly compensate for the negative perception associated with price discrimination. Consumers thus accept channel-based price differentiation with a reasonably lower online price, because prices reflect the difference in costs when selling in the channels. Moreover, we show that actively communicating the additional value provided in an offline store can be a powerful weapon for retailers to promote the acceptance of price differentiation. Finally, we point out implications for research and managerial practice considering the limitations of our research. In summary, our three studies contribute to the understanding of price discrimination in the context of the online/offline retail environment for both researchers and managers of multi-channel companies.

This dissertation makes an important contribution to pricing strategy research in the context of the multi-channel retail environment. It starts with a broad examination of the highly relevant topic of cross-channel pricing, including a detailed theoretical foundation as well as a comprehensive review of the literature. On the basis of a broad agenda for future research, three empirical studies investigating the feasibility and acceptance of channel-based price differentiation from a consumer’s perspective were designed. Each study provides new

and valuable insights on the questions whether channel-based price differentiation is a feasible strategy for multi-channel companies and therefore enhances knowledge of both researchers and managers.

Appendix

A. Expert interview guidelines

1. Which goals do you follow with your decision to sell products online as well as offline?
2. What are the central topics and challenges with regards to multi-channel pricing for you?
3. How do you set your prices across the online and offline channels and what are the goals of your pricing strategy?
4. What are the reasons for your decision to differentiate (not differentiate) prices across channels?
5. *If prices are differentiated:* Do you differentiate prices for all products? If not, how do you decide for which products to differentiate prices across channels?
6. *If prices are differentiated:* How do you decide on the direction (online or offline price higher) and the size of the price difference?
7. *If prices are differentiated:* How do you explain the different prices to consumers?
8. *If prices not differentiated:* What were the main reasons for deciding against channel-based price differentiation?
9. *If prices not differentiated:* How do you set the uniform price?
10. Do you measure the success of your multi-channel pricing strategy?
11. How could research help you improve your multi-channel pricing decisions?
12. Which information from consumers' side would you consider relevant to improve your pricing decisions?

B. Study 2 scenario presentation

Please imagine that you want to buy an MP3-player. In a magazine you come across an advertisement of a retailer that is offering an MP3-player for €39.99, which is a market price for this product. You can purchase the MP3-player for this price in the retailer's store that you can access easily.

However, later that day, you visit the retailer's online shop and discover that you can buy the same MP3-player online at a price of [€33.99 / €37.99 / €39.99 / €41.99 / €45.99].

Please also assume the following:

- Prices are regular and permanent (i.e. no temporary price promotions)
- Both, for online shopping and buying in the store you can use the product as intended for the first time the next day
- There is no additional cost (i.e. no shipping, handling, returns or travel costs)
- You do not need to be concerned about security when buying online
- Payment and returns conditions meet your expectations

Additionally, participants in the cost cue condition received a note about the retailer's costs, which read as follows:

Please assume that the costs of selling this product are the same for the retailer in the store and in the online shop.

C. Study 3 scenario presentation

Please imagine that you want to buy a sofa for your home. In a magazine you come across an advertisement of a retailer that is offering a sofa for €599, which is a market price for this product. You can purchase the sofa for this price in the retailer's store that you can access easily.

However, later that day, you visit the retailer's online shop and discover that you can buy the same sofa online at a price of [€509 / €569].

Cost-based communication condition: The retailer communicates the following about its prices: Due to higher costs for rental, sales and service personnel, and store equipment prices in our store may be higher than prices in the online shop.

Value-based communication condition: The retailer communicates the following about its prices: Since we offer our customers in the store greater service in the form of advice from sales and service staff, a more elaborate presentation of goods as well as a greater shopping experience than in our online shop, prices in our store may be higher than prices in the online shop.

Please also assume the following:

- Prices are regular and permanent (i.e. no temporary price promotions)
- Both, for online shopping and buying in the store you can use the product as intended for the first time the next day
- Delivery of the sofa is free of charge independent of buying it in the conventional retail store or online shop
- There is no additional cost (i.e. no shipping, handling, returns or travel costs)
- You do not need to be concerned about security when buying online
- Payment and returns conditions meet your expectations

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