

# **Sales Effects of Undiscounted Surprise Goods**

Zur Erlangung des akademischen Grades eines  
Doktors der Wirtschaftswissenschaften

(Dr. rer. pol.)

von der KIT-Fakultät für Wirtschaftswissenschaften  
des Karlsruher Instituts für Technologie (KIT)

genehmigte

DISSERTATION

von

M.Sc. Wiebke Klingemann

---

Abgabedatum:	Karlsruhe, den 12.07.2019
Referentin:	Prof. Dr. Ju-Young Kim
Korreferent:	Prof. Dr. Martin Klarmann
Tag der mündlichen Prüfung:	Karlsruhe, den 23.09.2019



---

## **Danksagung**

An dieser Stelle möchte ich mich natürlich bei all jenen bedanken, die für die Entstehung dieser Dissertation eine wichtige Rolle gespielt haben.

Zu allererst natürlich bei meiner Doktormutter Ju-Young Kim – ich hätte mir keine bessere Doktormutter vorstellen können. Du hast mir alle Freiheiten gelassen, mich in meiner Forschung zu entwickeln und Dinge auszuprobieren. Du warst offen für all meine Ideen, hast mich motiviert und warst immer erreichbar, egal wie viel bei dir selbst los war. Vielen vielen Dank für deine Unterstützung in jeder Hinsicht – es hat so viel Spaß gemacht, mit dir zu arbeiten!

Dann natürlich bei Julia Schell, meiner Bürogenossin, Kaffee- und Teegefährtin und guten Seele des Lehrstuhls: Du hast mich so oft zum Lachen gebracht, mich aufgebaut, wenn es mal nicht so rund lief, und standst mir einfach immer mit Rat und Tat zur Seite.

Mein nächster großer Dank gilt natürlich dem gesamten Team des Nachbarlehrstuhls, besser gesagt meines „Adoptivlehrstuhls“ – von Anfang an hatte ich das Gefühl, auch hier dazuzugehören. Herr Klarmann, vielen vielen Dank, dass Sie mich in Ihr Team aufgenommen haben, als Ju an die Uni Frankfurt gewechselt ist, für die tollen Sommerfeste, fundierten Ratschläge und die vielen lustigen Gespräche!

Frau Bayer, Ihnen vielen Dank für die Hilfe beim Regeln so vieler kleiner und größerer Angelegenheiten.

Dann einen großen Dank meinen Kollegen Sven Feurer, Verena Rieger, Max Lüders, Martin Moosbrugger, Ingo Halbauer und Anika Honold. Ihr habt mir die Doktorandenzeit leichtgemacht, da ihr nicht nur meine Kollegen wart, sondern auch meine Freunde geworden seid. Sven, von mir auch gerne „mein Idol“ genannt, du warst im wahrsten Sinne des Wortes der perfekte akademische Rat! Verena, danke für deine Hilfe, wann immer ich Fragen hatte, und unsere schönen Unternehmungen in Karlsruhe und auf Konferenzen. Max, danke für die vielen Gespräche über wichtige und unwichtige Dinge des (alltäglichen) Lebens, deine witzige Art und deinen Durchblick. Martin, danke für deine unkomplizierte Art und die gute Zusammenarbeit. Ingo, du Durchstarter, danke

---

für deine unendliche Hilfsbereitschaft, du lässt einen wirklich niemals hängen! Anika, danke für deine viele Hiwi-Hilfe, zum Beispiel beim Adventskalender-Packen!

Schließlich möchte ich mich auch noch bei unseren studentischen Hilfskräften, einigen weiteren KIT-Student(inne)n sowie externen Kooperationspartnern bedanken, die auf verschiedenste Weise beim Ausprobieren von Ideen und der Vorbereitung und Durchführung unterschiedlicher Projekte beteiligt waren: Anh Dao Thi Duc, Florian Meister, Gesa van den Boom, Marius Michel, Marius Thoma, Michael Heimann und Sophia Giebner, sowie die Abo-Boxen Brandnooz und Lootchest, die Konfiserie Endle, und Waldemars Suppenstüble aus Karlsruhe. Auch wenn nicht alle Ideen so aufgingen wie erhofft (Versuch macht klug!), war doch jedes einzelne Projekt spannend und irgendwie wichtig für die Entstehung dieser Arbeit.

Ein großer Dank gilt natürlich auch meiner Familie, insbesondere meinen Eltern, Heiko und Ulrike Klingemann: Für die tolle Studienzeit, die sie mir ermöglicht haben, und die Unterstützung und den Zuspruch während meiner Doktorandenphase – es ist immer gut zu wissen, dass es jemand gibt, der an einen glaubt.

Ein weiterer großer Dank geht an Mirjam Ambrosius, eine meiner allerbesten Freundinnen, die mich bei der Entstehung dieser Arbeit sehr aufgebaut hat, und auf die ich sowieso einfach immer zählen kann!

Und schließlich geht ein ganz besonders großer Dank an meinen Freund Frank Dormeyer. Du warst immer für mich da, hast mich immer aufgeheitert, unterstützt und bei allen Hoch- und Tiefpunkten in diesen vier Jahren begleitet. Ohne dich wäre es nicht gegangen 😊!





**TABLE OF CONTENTS**

LIST OF FIGURES.....	V
LIST OF TABLES.....	VII
<b>1 Introduction .....</b>	<b>1</b>
1.1 Thematic relevance and research objectives.....	1
1.2 Thesis structure .....	5
1.3 Co-authorships .....	6
<b>2 Fundamentals.....</b>	<b>7</b>
2.1 Conceptual fundamentals.....	7
2.1.1 Surprise: definition and marketing relevance .....	7
2.1.2 Opaque and probabilistic goods: conceptual overview .....	9
2.2 Theoretical background and related work.....	16
2.2.1 Seller advantages of surprise goods.....	16
2.2.2 Drivers and barriers of surprise good purchases.....	19
2.2.3 Free surprise goods and surprise prices .....	23
2.2.4 Context effects of surprise goods.....	28
2.3 Conclusion and derivation of research questions.....	29
<b>3 Increasing Sales and Purchase Satisfaction through Offering Opaque Goods. 33</b>	
3.1 Introduction.....	33
3.2 Theoretical background and hypotheses .....	35
3.2.1 Opaque selling.....	35
3.2.2 Perceived risk and opaque goods .....	36
3.2.3 The ease and fun of buying surprises.....	37
3.3 Empirical studies.....	40
3.3.1 Study 1: Integrating opaque goods into the assortment.....	40
3.3.2 Study 2: Effects of opaque vs. transparent goods on consumers’ individual purchase quantity and post-purchase satisfaction.....	44
3.3.3 Study 3: Evaluations of opaque vs. transparent goods .....	47
3.4 General discussion .....	50

3.4.1	Research contribution .....	50
3.4.2	Managerial implications.....	51
3.4.3	Limitations and future research directions.....	52
<b>4</b>	<b>The Influence of Probabilistic Decoy Goods on Assortment Choice .....</b>	<b>55</b>
4.1	Introduction.....	55
4.2	Related theory and hypotheses.....	56
4.2.1	Using probabilistic goods as decoys .....	56
4.2.2	The chance–quality heuristic: probability as a signal for quality .....	58
4.2.3	Effects of confirming vs. disconfirming information on choice.....	59
4.3	Empirical studies.....	60
4.3.1	Study 1: Game of dice experiment I (2 items).....	60
4.3.2	Study 2: Game of dice experiment II (3 items).....	63
4.3.3	Study 3: Prize wheel experiment .....	65
4.4	General discussion .....	66
<b>5</b>	<b>Framing Price Increase Communication: The Use of Loyalty Incentives .....</b>	<b>68</b>
5.1	Introduction.....	68
5.2	Framing of price increase communication.....	71
5.2.1	Prior research on price increases.....	71
5.2.2	Prior research on marketplace metacognition.....	72
5.3	Levers for framing price increase communication and effects on marketplace metacognition and churn rate.....	72
5.3.1	Lever 1: Impact of reason of price increase on marketplace metacognition and churn.....	74
5.3.2	Lever 2: Impact of incentives on marketplace metacognition and churn.....	74
5.4	Empirical studies.....	77
5.4.1	Study 1: Price increase of an electricity provider .....	77
5.4.2	Study 2: Price increase of an internet provider .....	85
5.5	Summary and implications .....	91

---

<b>6 Conclusion .....</b>	<b>94</b>
<b>7 Appendices .....</b>	<b>99</b>
7.1 Appendix A: Supplementary material for chapter 2 .....	99
7.2 Appendix B: Supplementary material for chapter 3 .....	102
7.3 Appendix C: Supplementary material for chapter 4 .....	106
7.4 Appendix D: Supplementary material for chapter 5 .....	108
<b>8 References .....</b>	<b>117</b>



**LIST OF FIGURES**

Figure 1: Classification of different types of transparent and surprise goods according to determination of purchase good.....	12
Figure 2: Study 1: Promotional ice cream posters .....	41
Figure 3: Study 2: Purchase quantities by condition .....	46
Figure 4: Conceptual model.....	60
Figure 5: Study 1: Choice decisions by condition .....	62
Figure 6: Estimated prices for lemon sodas A, B, and C by condition (option as competitor vs. option as target).....	64
Figure 7: Choice shares by option and condition .....	66
Figure 8: Overview of framing of price increase communication.....	73
Figure 9: Summary of main actions per day.....	79
Figure 10: Screenshots of household budget game on day 4.....	80



**LIST OF TABLES**

Table 1: Distinction between probabilistic and opaque goods.....	11
Table 2: Examples of promotions offering free opaque goods (=customers receive a free gift that is not fully specified).....	13
Table 3: Examples of promotions offering free probabilistic goods (=customers receive a free gift out of multiple fully specified alternatives).....	14
Table 4: Examples of pure opaque selling (=customers can purchase opaque goods only; there are no transparent goods).....	14
Table 5: Examples of pure probabilistic selling (=customers can purchase probabilistic goods only; the component goods are not offered as transparent goods).....	15
Table 6: Examples of mixed opaque selling (=customers can choose between an opaque good or the transparent purchase of alternative items of the same category).....	15
Table 7: Examples of mixed probabilistic selling (=customers can choose between a probabilistic good or the transparent purchase of its component goods) .....	16
Table 8: Consumer characteristics that impact the purchase of surprise goods .....	20
Table 9: Research on surprise travel products .....	22
Table 10: Research on surprise subscription boxes .....	22
Table 11: Research articles about the use and effects of free surprise goods and surprise prices.....	24
Table 12: Overview of results for key variables of the ice cream experiment.....	42
Table 13: Estimation results of linear regression of the effect of phase (provision of mystery flavors) on ice cream revenue .....	43
Table 14: Items used for measuring post-purchase satisfaction .....	46
Table 15: Mean ratings for products wrapped transparently vs. opaquely.....	49
Table 16: Summary of the scales used for measuring marketplace metacognition.....	81
Table 17: Overview of experimental conditions in Study 1 .....	82
Table 18: Overview of customers' churn rates and marketplace metacognition values .....	83
Table 19: Average marketplace metacognition I and II by behavioral outcome.....	85

---

Table 20: Overview of experimental conditions in Study 2 .....	86
Table 21: Scales used in Study 2 .....	88
Table 22: Average perceptual outcome by behavioral outcome .....	89
Table 23: Results of logistic regression of the influence of negative arousal, marketplace metacognition and fairness of the price increase on churn.....	89
Table 24: Overview of customers' churn rates, marketplace metacognition values and fairness perceptions .....	90

# 1 Introduction

## 1.1 Thematic relevance and research objectives

Surprise goods, that is, products or services that are either not fully specified (Fay 2008), or assigned to consumers from a set of possible items (Fay and Xie 2008), can be found in a variety of contexts and domains.

In the travel industry, tourists can book surprise flights, surprise hotels, or whole surprise vacations. Between 2015 and 2018, the airline Eurowings sold about 80,000 so-called blind booking tickets: when booking, customers select a travel category (e.g. party, culture, metropolis) which will guide them to a set of possible flying destinations. Instead of choosing among these options, customers then finalize their booking, and only learn where their flight is taking them after the purchase is made. With prices starting from €66, Eurowings' blind booking tickets are on average 50% cheaper than regular tickets (Emmerich 2019).

Travel website Hotwire offers hotels, flights and rental cars, and lets customers pick among options that are only specified on certain criteria (e.g., a 4-star hotel in the city center of New York), with the exact hotel name, itinerary or car type only revealed once the booking is completed. In June 2018, Hotwire featured \$49 rates on 4+ star hotels in major U.S. cities for travel around the Fourth of July, a deal that was sold out after 48 hours (Expedia 2018).

Start-ups like Blookery or Unplanned create an even stronger surprise experience by offering complete surprise vacations: customers pre-define their wishes in a questionnaire, but the travel destination and further arrangements remain a secret until the journey starts (Schumacher 2019).

Another growing industry are subscription box services. According to a McKinsey study, the market has grown by more than 100% per year between 2012 and 2017. 55% of the offers are so-called curation subscriptions, whose key consumer value is “being surprised by product variety” (Chen et al. 2018). For instance, curation subscription box service Ipsy sends out surprise “glam bags” on a monthly basis. Each glam bag contains five personalized beauty products, but customers only find out about the exact content once they receive it. By August 2018, Ipsy had more than 3.5 million glam bag subscribers (Rao 2018).

Offline, retailers and local service providers offer surprise goods as temporary promotions or special part of their assortment.

For instance, retailers in Japan and other East Asian countries traditionally offer New Year's sales items as "Fukubukuro": lucky bags whose exact content remains unknown until after purchase (Nuryakin and Munro 2019). As another example, many bookstores or libraries have created "Blind Dates with a Book", such as the Hawaii public library which offers hand wrapped parcels tagged with clues about the book inside, each "an opportunity to fall in love with a surprise book" (Hawaii State Public Library 2019).

Furthermore, fast-moving consumer goods (FMCG) brands such as Oreo (cookies), HubbaBubba (bubblegum), Müller Milch (dairy products), Pringles (potato chips), Treacle Moon (body care) and many others have created surprise goods in form of so-called "mystery editions" (see Appendix B.1) where the flavor or the scent of the product are not revealed on the packaging.

Despite this abundance of practice examples, research on the sale of surprise goods remains limited. The large majority of research takes an economic perspective and studies the sale of surprise goods as a tool for price discrimination (e.g. Fay and Xie 2008, 2010; Jiang 2007; Rice, Fay, and Xie 2014). This research stream then uses stylized models to quantitatively derive effects of the sale of surprise goods on the seller, such as effects on capacity utilization (e.g. Geng 2016; Granados, Han, and Zhang 2018; Mao, Liu, and Feng 2019; Wu and Wu 2015), inventory management (Fay and Xie 2015; Zhang et al. 2018), or the optimal product mix (Fay, Xie, and Feng 2015).

Thus, while there is ample effort to theoretically model effects of the sale of surprise goods for the seller (see Gönsch (2020) for an exhaustive literature review of existing papers), there is an overall lack of empirical research that builds on findings from consumer experiments. One rare exception is a research article by Hill, Fombelle, and Sirianni (2016) who experimentally examine how selling surprise goods impacts consumer purchase behavior. In two studies, they demonstrate that mystery appeals trigger consumers' curiosity, which then drives purchase motivation. They thereby identify an important non-financial motive for buying surprise goods, which suggests that price advantages are not necessarily consumers' (only) reason for purchasing these.

Consequently, the question arises whether surprise goods need to be sold at cheaper prices than transparent goods (i.e., products sold under fully specified information), which is the standard assumption in current research. Thus, in addition to a general lack of experimental studies on the sale of surprise goods, there is a research gap regarding the sale of surprise goods that do not offer a financial advantage to consumers.

In practice, discounts are often – but not always – in place. On the one hand, there are examples like the blind booking offers from Eurowings and Hotwire that are meant to target bargain hunters, or Fukubukuro which is used as an end-of-season sales offer. On the other hand, there are examples like the surprise vacation packages from Blookery and Unplanned which are not (necessarily) cheaper than transparent bookings, the FMCG mystery editions that cost the same as transparent alternatives, and the books at the Hawaii Public Library, where borrowing books is always free of charge.

The conceptual difference between these offers is that the former sellers create a surprise good by assigning consumers one item out of a set of options (i.e., they create a *probabilistic good*), whereas the latter sellers create a surprise good by developing a new good and hiding (some of) its attributes (i.e., they create an *opaque good*)<sup>1</sup>. Here, the question arises whether it is advantageous to create an opaque good instead of simply offering an additional transparent good.

One research objective of this thesis is therefore to investigate whether it is recommendable for sellers to offer undiscounted opaque goods, that is, to offer (partly) unspecified items at regular prices. To date, there is no comparison between selling a good in opaque versus transparent form at the same price, leaving it unclear whether subscription boxes such as Ipsy or consumer brands such as Oreo should rather always sell their products under fully specified information.

This topic is investigated in form of a primary research article presented in chapter 3.

A second research objective of this thesis is to investigate whether consumer choice changes when sellers offer undiscounted probabilistic goods (i.e., sets of multiple items of which one will be assigned to the consumer). Current research considers that discounted probabilistic goods cannibalize transparent goods (e.g. Granados, Han, and Zhang 2018) and demonstrates that transparent demand decreases for those items that are highly probable within a cheaper probabilistic good (e.g. Fay and Xie 2008; Jerath, Netessine, and Veeraraghavan 2010). However, probabilistic goods that do not offer a price discount are unlikely to attract substantial demand. They can therefore be considered as decoys, meaning that while their demand is close to zero, they may impact transparent choice due to context effects (compare Zheng, Pan, and Carrillo 2019). As the problem of cannibalization is obsolete when probabilistic goods are sold at the same

---

<sup>1</sup> For further examples and a more detailed definition and differentiation of the terms “opaque” and “probabilistic”, please see chapter 2.1.2.

price as transparent goods, it is interesting to explore if and how probability distributions within undiscounted probabilistic goods affect the choice of transparent goods. Thus, the second research objective of this thesis is to examine whether the probability distribution of items within a probabilistic good can be used as a context managing tool to drive consumers' purchase choice towards certain transparent goods. Research on this can be found in another primary research article presented in chapter 4.

A third application field for undiscounted surprise goods is their use as a customer gift or incentive, where they are frequently used to motivate customers to make a purchase. For instance, online retailer Amazon ran a surprise gift promotion in December 2018 in order to push the use of its delivery lockers: every customer who picked up his or her Amazon order at a delivery locker at a Whole Foods Market Manhattan store would also find a "crazy surprise gift" in the locker, which could be anything from household items like Oral B toothbrushes or electronic gadgets such as Sony headphones to Amazon devices including Echo or Kindle (Koman 2018).

While there is ample research showing positive effects of free gifts and incentives on purchase behavior and loyalty (e.g. Bodur and Grohmann 2005; Chandon, Wansink, and Laurent 2000; Montaner, de Chernatony, and Buil 2011), and other behavioral consumer responses such as information sharing (Premazzi et al. 2010) or switching intentions (Andrews, Benedicktus, and Brady 2010; Berger et al. 2019), there is no research on the effectiveness of incentives when it comes to prevent customers from churning in the context of price increases. Here, the provision of incentives might be delicate, as customers might ask why companies can afford to offer free gifts if they have to increase prices. While surprise gifts were shown to improve customer responses in purchase promotions (Goldsmith and Amir 2010; Laran and Tsiros 2013) or as a customer reward (Wu, Mattila, and Hanks 2015), their effect in the context of price increases is unclear, as they might fuel feelings of skepticism.

Thus, the third research objective of this thesis is to examine the effectiveness of incentives in price increase communication, thereby investigating whether different types of incentives (for instance, a surprise good) have different effects. This project is described as another primary research article in chapter 5.

## 1.2 Thesis structure

This thesis consists of six chapters.

Chapter 1 gives an introduction to the topic and illustrates its relevance and the related research objectives (chapter 1.1). It further clarifies which research articles were developed in cooperation with co-authors (chapter 1.3).

Chapter 2 defines the terms *surprise* as well as *opaque goods / probabilistic goods* in relation to the context, illustrated by practice examples (chapter 2.1). It then gives an overview about main seller advantages of surprise goods (chapter 2.2.1), factors that influence the purchase of surprise goods (chapter 2.2.2), and consumer reactions to free surprise goods and surprise prices (chapter 2.2.3) before presenting selected context effects of assortment design (chapter 2.2.4). Based on this review of related work, three research questions are formulated (chapter 2.3), referring to the research objectives stated in the introduction (chapter 1.1).

Chapters 3, 4 and 5 are structured in the form of scientific research articles, addressing research questions 1, 2, and 3, respectively.

Chapter 3 investigates how offering undiscounted opaque goods affects sales and purchase satisfaction. The chapter starts with a motivation of the research question (chapter 3.1) and then presents the theoretical background, based on which three hypotheses are derived (chapter 3.2). These hypotheses are tested in three studies. Study 1 is a field experiment that investigates how the integration of opaque goods into a transparent product assortment impacts sales, and also sheds some light on consumers' purchase motives (chapter 3.3.1). Study 2 is a laboratory experiment that measures how offering opaque goods affects sales and purchase satisfaction (chapter 3.3.2). Study 3, another laboratory experiment, adds to this by examining how opaqueness affects product evaluation (chapter 3.3.3). The chapter closes with a general discussion (chapter 3.4): it sums up the research contribution (chapter 3.4.1), and provides managerial implications (chapter 3.4.2) and future research directions (chapter 3.4.3).

Chapter 4 examines how offering undiscounted probabilistic goods affects sales and perceived expensiveness of transparent goods. Again, the chapter first motivates the research question (chapter 4.1) before explaining the theoretical background, based on which two hypotheses are derived and visualized in a conceptual model (chapter 4.2). One online scenario experiment (chapter 4.3.1) and two field studies (chapter 4.3.2 and

4.3.3) then investigate how lowering the allocation likelihood of an item within a probabilistic good affects consumers' choice of transparent items (Studies 1 to 3) and the perceived expensiveness of the items (Studies 1 and 2). The chapter closes with a general discussion (chapter 4.4).

Chapter 5 investigates whether the provision of reasons and incentives – among others, a surprise incentive – can mitigate churn in price increase communication. The chapter sets the scene by motivating the research question (chapter 5.1) and providing the theoretical background upon which two research questions are built (chapter 5.2 and 5.3). Study 1, a household budget game, examines if and how the provision of reasons and loyalty incentives affects consumers' perception of a price increase and the related churn rates (chapter 5.4.1). Study 2, an online scenario experiment, explores whether consumers' reactions to price increases vary depending on the type of incentive offered (chapter 5.4.2). The chapter closes with a summary and discussion of implications (chapter 5.5).

Chapter 6 summarizes the results of the three research articles and answers the three research questions introduced in chapter 2.3.

### **1.3 Co-authorships**

The three research articles presented in chapters 3 to 5 are based on working papers developed together with co-authors. Research article 1 in chapter 3 and research article 2 in chapter 4 are based on two working papers with Ju-Young Kim (Klingemann and Kim 2019a, 2019b). Research article 3 in chapter 5 is based on a working paper together with Ju-Young Kim, Martin Natter and Katharina Kaufmann (Klingemann et al. 2019).

## 2 Fundamentals

### 2.1 Conceptual fundamentals

#### 2.1.1 Surprise: definition and marketing relevance

Psychologists have classified surprise as a basic emotion (Ekman, Levenson, and Friesen 1983) as which it has been described as a feeling of astonishment (Mellers et al. 2013, p. 3) or arousal due to an unexpected input (Lorini and Castelfranchi 2007, p. 133). Surprise is usually characterized as a neutral or bivalent emotion whose valence depends on the valence of the outcome or accompanying feelings (Westbrook and Oliver 1991). Thus, surprise leads to an amplification of the occurring emotions, which can be pleasant, or unpleasant (Mellers, Schwartz, and Ritov 1999).

Quantitatively speaking, surprise is defined as “*the difference between posterior and prior beliefs of the observer*” (Itti and Baldi 2009, p. 1295). This means that surprise occurs if beliefs change, or if beliefs are transformed from an undefined to a defined stage. Translated to practice, surprise can therefore be created through the disconfirmation of an expectation, or through the resolution of an uncertainty. In the context of marketing, surprise can thus be described as (1) an emotion that occurs from expectation-disconfirmation and (2) an uncertainty that is resolved at a later point of time.

*Surprise as expectation-disconfirmation.* The feeling of surprise arises if an actual outcome is different from an expected outcome (e.g. Stiensmeier-Pelster, Martini, and Reisenzein 1995), for instance due to a schema-discrepancy, or because an outcome had a low relative probability, is novel, or different from previous experiences. The level of perceived surprise correlates with the extent to which the outcome is different from what was expected (Teigen and Keren 2003).

As an outcome can negatively or positively deviate from expectations, surprise can be both negative or positive. Recent studies argue however that surprise is always negative, because the related unexpectedness implies that an inaccurate prediction of the future has been made, but that a positive outcome leads to an overall feeling of a “pleasurable surprise” (Noordewier and Breugelmans 2013; Noordewier, Topolinski, and van Dijk 2016). Regardless of the exact psychological process, it is important to note that surprise intensifies emotions, such that good (bad) news feel even better (worse) when they were not expected (Shepperd and McNulty 2002).

In a marketing context, the conceptualization of surprise as a reaction to expectation-disconfirmation is particularly relevant with regard to expectation management. A negative disconfirmation of customer expectations leads to heightened levels of customer dissatisfaction, disappointment and frustration (Anderson 1973). Likewise, a positive disconfirmation of customer expectations increases satisfaction (Vanhamme and Snelders 2001) and is often described as an important driver of customer delight (Barnes et al. 2016; Oliver, Rust, and Varki 1997; Oliver and Winer 1987).

Furthermore, surprise is also a popular advertising instrument, because surprise automatically leads to attention (Horstmann and Herwig 2015; Itti and Baldi 2009). For instance, surprise caused by a schema-discrepant display of information (Meyer et al. 1991), unusual ambient media (Hutter and Hoffmann 2014) or shocking advertisements (Dahl, Frankenberger, and Manchanda 2003) increases attention and memorizing of the stimulus. Surprise also helps to create humor in advertising (Alden, Mukherjee, and Hoyer 2000; Woltman Elpers, Mukherjee, and Hoyer 2004) and encourages word-of-mouth (Derbaix and Vanhamme 2003; Lindgreen and Vanhamme 2003).

*Surprise as uncertainty-resolution.* Especially in everyday language, the noun “surprise” is not only used to describe a reaction to something unexpected, but also to refer to an information (e.g. about an object, an event etc.) that is undefined or uncertain and will be specified at a later point of time.

For instance, “surprise” is sometimes used as a synonym for gift (Bartsch and Estes 1997). In this sense, receiving a surprise can either mean that the recipient has not expected to receive a gift (i.e., surprise as an event of expectation-disconfirmation), or that the recipient does not know what kind of gift s/he receives (i.e., surprise as an uncertainty or withheld information about an object) (c. Vanhamme and Bont 2005).

In marketing, withholding information to create a surprise is a commonly used practice. For instance, Super Bowl advertisers often keep their spots a secret, hoping to generate word-of-mouth through surprise (Nail 2007). In the context of promotions, surprise discounts describe a practice where customers only learn the exact amount of their discount once they are about to pay, a concept implemented via lucky mechanisms such as scratch cards (Choi, Stanyer, and Kim 2010). Furthermore, companies often advertise that customers will receive a surprise (i.e., an undefined product) as a thank-you for their purchase (compare Table 2 and 3).

Finally, surprise is also used as a retail mechanism (Bischof, Boettger, and Rudolph 2019), for instance in form of online subscription services that curate surprise boxes with uncertain content, restaurants that offer surprise menus with secret courses, or airlines that sell surprise flights to unknown destinations (compare Table 4 to 7 for different examples).

The focus of this thesis will be on the latter manifestation of surprise – surprise as a retail mechanism – through investigating settings where sellers offer *surprise goods*.

### 2.1.2 Opaque and probabilistic goods: conceptual overview

*Definitions.* Surprise goods are characterized by an uncertainty that gets resolved through the act of purchasing. This thesis uses the term surprise goods as a generic term for *opaque goods* and *probabilistic goods*. Jiang (2007) was among the first to use the term opaque selling (i.e., the practice of selling opaque goods) to describe that “firms intentionally withhold key information concerning some products to create an opaque product type” (p.118). This description was picked up by Scott Fay who defines an opaque good as “a product whose exact identity is concealed from consumers until after purchase” (Fay 2008, p. 59), and also introduced the term probabilistic good as “not a concrete product or service but an offer involving a probability of getting any one of a set of multiple distinct items” (Fay and Xie 2008, p. 674). Relatedly, probabilistic selling describes the practice of selling probabilistic goods.

These two different definitions are not mutually exclusive, as receiving any item out of a set of multiple distinct items (i.e., the definition of a probabilistic good) implies that the exact identity of the purchase is concealed (i.e., the definition of an opaque good). Consequently, most research uses both terms synonymously, in exchange for each other (e.g. Huang and Yu 2014, Rice, Fay, and Xie 2014).

*Differentiation between opaque and probabilistic goods.* Strictly speaking, a conceptual difference does however exist. The definition of a probabilistic good implies that there is a minimum number of  $n=2$  possible items, of which one to  $n-1$  is assigned to the consumer. Probabilistic selling is therefore only possible if a seller offers at least two distinct products or services. By creating a probabilistic good using existing distinct items – which are then called *component goods* of the probabilistic good (Fay and Xie 2008) –, a seller creates an additional purchase option without introducing a new distinct

item to the assortment (Fay, Xie, and Feng 2015). The level of consumer uncertainty rises with the number of component goods, and their degree of differentiation.

In contrast, an opaque good can also be a single product or service. Its exact identity is concealed because (part of) its attributes are not fully specified. In this case, the seller actually introduces a new distinct item to the assortment, or alternatively, transforms an existing item into an opaque good by hiding (part of) its attributes. The level of consumer uncertainty rises with the number of hidden attributes and the precision of the product category. While the number of possible items an opaque good can be is theoretically infinite (i.e., a high degree of opacity; compare “Somethingstore”, ex. 4.2 in Table 4), the prospects are usually limited through the indication of a category (i.e., a moderate degree of opacity; compare “MylittleBox”, example 4.1 in Table 4). Often, the identity of the opaque good is almost known, except for one concealed attribute (i.e., a low degree of opacity; compare “Pringles”, example 6.3 in Table 6).

Despite the conceptual difference, there is no sharp line that distinguishes probabilistic from opaque goods, the concepts sometimes blur. As an example, if a traveler books an unknown “5-star hotel in Brooklyn, New York City” at Hotwire, s/he faces an opaque good. However, it is theoretically possible to gather information about all hotels that exist in Brooklyn, which would then result in a probabilistic good. For a seller like Hotwire, implications remain equal, regardless whether all possible hotel alternatives are displayed or not.

Both types of goods have in common that consumers do not know the exact product or service they will receive when making a purchase. When a distinction is not critical or impossible (e.g. when a seller such as Hotwire offers a probabilistic good with opaque component goods), this thesis summarizes the terms opaque good and probabilistic good under the umbrella term *surprise good*, and the sale of surprise goods as *surprise selling*. This term is appropriate, as the exact identity of surprise goods is always uncertain, and consumers may also experience expectation-disconfirmation. For instance, they might receive component good A even though component good B was more likely when buying a probabilistic good, or they might receive an unusual opaque good that they did not at all anticipate (compare chapter 2.1.1 for information on the concept of surprise in marketing).

For consumers, the decisive characteristic of these offers is the uncertainty that arises. Where a distinction is useful (e.g. with regard to research question 1/chapter 3 vs. research question 2/chapter 4), this thesis will thus differentiate between the two terms with regard to the main source of consumer uncertainty, building on the above definitions by Fay (2008) and Fay and Xie (2008), respectively: if the main source of uncertainty is the allocation of one out of multiple items, the term *probabilistic good* will be used. If the main source of uncertainty is the missing specification of one or more item attributes, the term *opaque good* will be employed.<sup>2</sup> Table 1 summarizes this distinction.

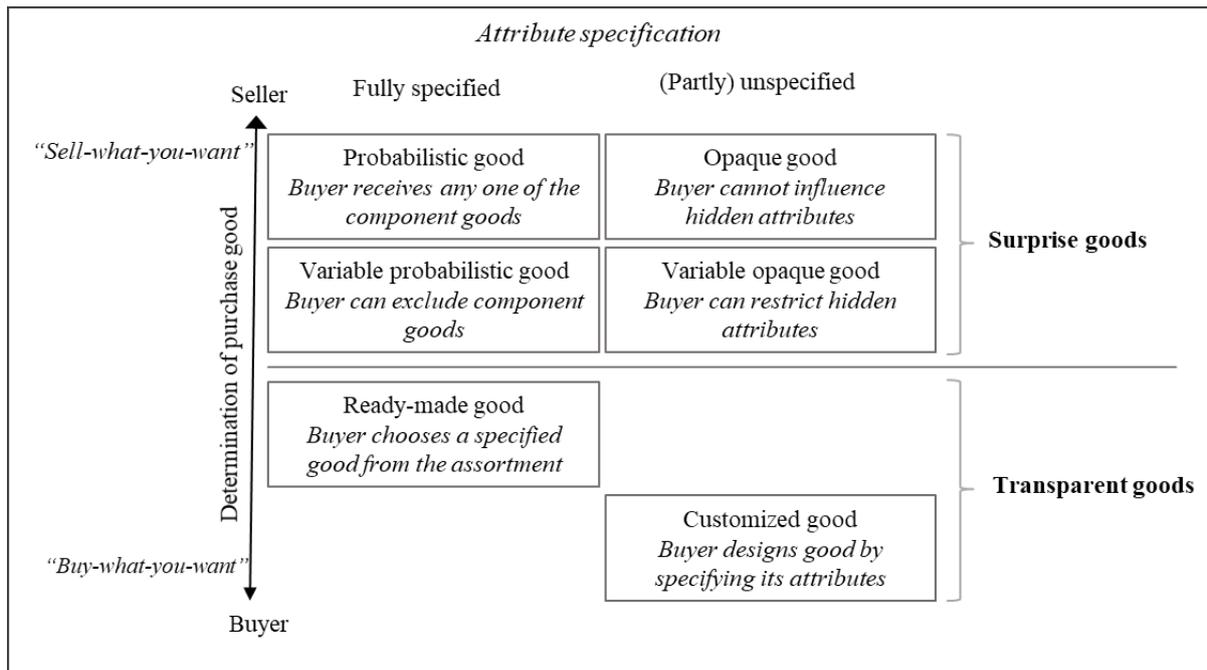
Type of surprise good	Mini- mum no. of items	Main source of uncertainty	Drivers of uncertainty	Example: Surprise hotel
Probabilistic good	2	Assignment of component good	Number of component goods Diversity of component goods	You will either stay at “Hotel Sunrise” or at “Hotel Paradise”.
Opaque good	1	Identity of missing attributes	Precision of category Number of hidden attributes	You will stay at an exclusive 5 star-hotel.

**Table 1: Distinction between probabilistic and opaque goods**

*Surprise goods as participative choice mechanisms.* Surprise goods therefore represent *participative choice mechanisms*, a conceptual equivalent to participative price mechanisms, where sellers assign (part of) their pricing power to the consumer (compare Klingemann and Kim 2016). In participative choice mechanisms, consumers assign (part of) their choosing power to the seller.

Figure 1 structures different types of surprise and transparent goods with respect to whether the buyer, the seller, or both determine the final good the buyer receives.

<sup>2</sup> This means that some articles are described with another terminology than they use themselves. Also note that for reasons of consistency within the article, research article 1 always uses the term “opaque good”, even when “surprise good” would suffice, or when referring to articles that use probabilistic goods.



**Figure 1: Classification of different types of transparent and surprise goods according to determination of purchase good**

Customized and fully specified goods are both transparent goods, as buyers know exactly what they are about to buy.

Customization allows buyers to define the exact product they want to have: buyers can specify attributes such as design, ingredients or materials used, or extras that the product should include (c. Arora et al. 2008, p.308). Customization could also be described as “Buy-what-you-want (BWYW)”, with the buyer gaining major control about the final customized product.

Most of the time however, buyers purchase products that are already fully specified, that is, they buy ready-made goods that are defined by the seller. The control about the purchase is still high because buyers are fully aware about the identity of their purchase. However, they can only decide whether or not to buy a product as-is, whereas the seller decides about the product specifications.

Variable surprise goods (compare Post 2010; Post and Spann 2012) assign higher control to the seller, as the seller decides which exact product or service the buyer receives. However, buyers still have some influence on the final item they get assigned: they can reduce uncertainty by excluding component goods from a probabilistic good, or by restricting possible attributes of an opaque good. For instance, customers who book a blind flight at Eurowings can remove destinations they do not want to fly to (a minimum of

three options must be left), and customers who book an unknown hotel at Hotwire can determine the area their hotel should be in.

If surprise goods are not variable, the seller alone decides about the item or item specifications of the buyer's purchase. Thus, the sale of non-variable surprise goods can be described as "Sell-what-you-want (SWYW)", particularly if the number of component goods or the degree of opacity is high.

*Pure and mixed selling of surprise goods.* While some companies specialize in selling surprise goods only (i.e. *pure* probabilistic or opaque selling), others offer surprise goods in addition to transparent goods (i.e., *mixed* probabilistic or opaque selling).

More precisely, if all component goods of a probabilistic good are also sold as transparent goods, the seller applies mixed probabilistic selling; if they are sold as component goods only, the seller applies pure probabilistic selling (compare Adams and Yellen (1976) for an analogous definition of mixed vs. pure bundling). Similarly, if a seller's assortment contains both opaque and transparent goods within the same category, this is called mixed opaque selling; in contrast to pure opaque selling, where all items are sold as opaque goods only.

*Practice examples.* In practice, all of the described variants (and hybrids of them) do exist. In various domains, sellers offer surprise goods for sale, or as free customer gifts. As an illustration, the following tables provide a selection of recent examples from practice (for visuals of the examples, see Appendix A). If not indicated otherwise, all following promotions were conducted in the first half of 2019, and all offers were available in May 2019.

No.	Company Name	Product	Description of Promotion	Country (Year)
2.1	Douglas	Cosmetics	Receive a beauty surprise for every order worth €75 or more.	Germany (2019)
2.2	Handelsblatt	Newspaper	Subscribe to 21 issues and receive a surprise gift worth at least €5.	Germany (2019)
2.3	GoCase	Phone Cases	Buy 2 phone cases and get 2 additional surprise phone cases for free.	Netherlands (2019), ships internationally
2.4	Christ	Jewelry	Easter surprise gift worth up to €69.90 for every order worth €79 or more.	Germany (2019)
2.5	Adore Me	Lingerie	Free surprise gift (original value €49.95) for every purchase over €65.	USA (2017)

**Table 2: Examples of promotions offering free opaque goods (=customers receive a free gift that is not fully specified)**

No.	Company Name	Product	Description of Promotion	Country (Year)
3.1	Douglas	Cosmetics	Receive a miniature surprise perfume (either Giorgio Armani, Lancôme or Yves Saint Laurent) for every order worth €39 or more.	Germany (2018)
3.2	28 Black	Energy Drink	Try the new flavors of 28 Black and get one of two display cleaners (green or red, determined by chance) for free.	Germany (2015)
3.3	Milka	Chocolate	Buy 2 Milka chocolates and receive one of 6 Super Mario Gadgets for free.	Germany (2019)
3.4	Heineken	Beer	Enter the code found on the bottle to see whether you won one of eight possible prizes.	Germany (2019)
3.5	Lidl	Super-market	Get one out of 24 figurines when buying at Lidl for over €10.	Germany (2018)

**Table 3: Examples of promotions offering free probabilistic goods (=customers receive a free gift out of multiple fully specified alternatives)**

No.	Company Name	Product	Description of Offer	Country (Year)
4.1	MylittleBox	Surprise subscription box	Customers receive a monthly box of surprise beauty products and accessories.	Germany (2019)
4.2	Somethingstore	Miscellaneous	For \$10, Somethingstore will send its customers an item selected randomly from its inventory. The “Something” can be literally anything, for instance a video game, a scarf, a box of chocolates, a table tennis set, and so on.	USA (2019)
4.3	Chef’s Table	Dinner	The restaurant chef selects what he will serve the guests, which changes every day. There is no menu.	UK (2019)
4.4	Pack Up + Go	Travel package	Pack Up + Go plans 3-day trips around the United States. The customer specifies the budget, the company takes care of all travel and accommodation arrangements while keeping the destination a surprise.	USA (2019)
4.5	Blinddate with-a-book.com	Novels	The whole assortment of the online shop consists of surprise books that are only described by five key words, e.g. “Culinary thriller, crime, mystery, revenge, 18 <sup>th</sup> century”.	USA (2019)

**Table 4: Examples of pure opaque selling (=customers can purchase opaque goods only; the seller offers no transparent goods)**

No.	Seller	Good	Description of Offer	Country (Year)
5.1	Depot	Storage jars	Storage jars in different colors (pink, green, or red); color cannot be chosen.	Germany (2019)
5.2	Panini	Stickers	Sachets containing 5 random stickers that are part of a sticker collection.	Europe (2019)
5.3	Ferrero	Kinder Surprise Collectable Figures	The Kinder Surprise collectable figures are little figures contained in chocolate eggs. Ferrero advertises which figures are part of the collection, however, these figures cannot be purchased transparently.	Europe (2019)
5.4	Raffle ticket booth at a fun fair	Miscellaneous	Customers buy raffle tickets which determine which of the products they receive.	Worldwide
5.5	Zoologischer Stadtgarten Karlsruhe	Animal presentation	Every Sunday, the zoo gives an on-stage presentation about some of its animals. Visitors do not know in advance which of the zoo animals will be presented.	Germany (2019)

**Table 5: Examples of pure probabilistic selling (=customers can purchase probabilistic goods only; the seller does not offer the component goods as transparent goods)**

No.	Company Name	Product	Description of Offer	Country (Year)
6.1	Cosmetics Studio Maria	Beauty Treatment	Surprise Treatment “Flower Power”. Let your skin blossom.	Germany (2019)
6.2	Eiszeit Herzog	Ice cream	Flavor “Don’t care”: The flavor of the ice cream is not specified any further.	Germany (2019)
6.3	Pringles	Potato Chips	Mystery Flavor: The flavor of the potato chips remains a surprise.	USA (2019)
6.4	Purelei	Jewelry	“Mahina Club”: customers get two exclusive surprise jewelry items.	Germany (2019)
6.5	Thalia	Books	Enjoy a blind date with a book! As an alternative to transparent books, customers can buy a surprise book wrapped in opaque packaging.	Germany (2019)

**Table 6: Examples of mixed opaque selling (=customers can choose between an opaque good or the transparent purchase of alternative items of the same category)**

No.	Company Name	Product	Description of Offer	Country (Year)
7.1	AIDA	Cruises	Surprise cruise: get assigned to one of two routes and/or one of two travel dates.	Germany (2019)
7.2	Burger King	Fast Food	Mystery burger: box contains one of eight possible burgers from the regular assortment.	Germany (2019)
7.3	Fleurop	Flowers	Surprise bouquet: the florist creates a bouquet using flowers from the daily assortment.	Germany (2019)
7.4	Lufthansa	Flights	Surprise flight to one of a number of different destinations (minimum number of possible options: 3).	Germany (2019)
7.5	Konfiserie Endle	Confectionary	Surprise chocolate box: box contains a certain number of different chocolates from the regular assortment.	Germany (2018)

**Table 7: Examples of mixed probabilistic selling (=customers can choose between a probabilistic good or the transparent purchase of its component goods)**

## 2.2 Theoretical background and related work

### 2.2.1 Seller advantages of surprise goods

The large majority of existing research on surprise goods consists of quantitative research that theoretically models the sale of discounted surprise goods with regard to implications for the seller, taking a microeconomic or operational perspective. This research shows that seller profitability increases due to the possibility of market segmentation and increased operational flexibility regarding the use of capacities and inventory<sup>3</sup>.

*Market segmentation.* The practice of selling surprise goods opens up a new dimension for market segmentation: segmentation with respect to differences in the strength of buyer preferences. Sellers can segment the market by offering high-priced transparent goods to customers with strong preferences, and lower-priced surprise goods to customers with weak preferences, who are less sensitive to certain attributes of the good (Fay and Xie 2008, 2010; Shapiro and Shi 2008). If market coverage is low, sellers offer surprise goods at a price that is lower than the current price for transparent goods, and thereby expand their market, because they reach new customers who were previously priced out. If market coverage is high, sellers offer surprise goods at the current price of

<sup>3</sup> For a more detailed description of single papers, please refer to Gönsch (2020). Using the term “incompletely specified products”, this research article provides an exhaustive review of relevant papers on surprise goods in the fields of strategic operations management, quantitative empirics, and revenue management, as of August 2018.

transparent goods and raise the price of the latter, thereby extracting additional surplus from customers with strong preferences for a specific good (Fay and Xie 2008). Thus, if there is sufficient variation in the strength of buyer preferences, surprise selling is an effective form of price discrimination that can lead to higher profits than other approaches such as last-minute selling (Jerath, Netessine, and Veeraraghavan 2010; Ren and Huang 2017), advance selling (Fay and Xie 2010), or markdown selling (Rice, Fay, and Xie 2014). In contrast, if buyers do not differ in their preference strengths, other forms of price discrimination are preferable.

*Increases in operational flexibility.* Industries where companies have to make upfront decisions about production and inventory (e.g. fashion), have fixed capacities (e.g. hotels), or face uncertainty about their own supply (e.g. agriculture) often suffer from a mismatch between supply and demand. Surprise goods reduce this mismatch, as sellers gain control about part of the demand, namely, the demand that is fulfilled through surprise goods. Thus, various research has demonstrated that surprise goods can help a seller to improve revenue management and profits via a more efficient use and management of inventory and capacities.

One of the main advantages is that surprise goods allow the seller to profitably dispose unused capacity to low-valuation customers without diluting regular prices (Zhang, Joseph, and Subramaniam 2015), which increases overall revenue (Gönsch and Steinhardt 2013).

Furthermore, surprise goods help to hedge against demand uncertainty: surprise goods allow the seller to encourage some customers to give up demand for a specific item, making it possible to reshape overall demand by substituting demand for one item with demand for another item (Zhang et al. 2016; Zhang et al. 2018). This means that a seller who assigns items to his/her buyers is able to reduce the amount of leftover items for which transparent demand is lower than forecasted, which decreases overall inventory costs (Fay and Xie 2015). Furthermore, surprise goods also lead to an optimization of the amount of products within an assortment, because buyers with heterogeneous preferences and willingnesses-to-pay can be served with the same products (Fay, Xie, and Feng 2015). These advantages are applicable to a variety of industries and contexts, such as air travel (Chen et al. 2010; Granados, Han, and Zhang 2018; Post 2010), retailing (Elmachtoub and Wei 2015; Xiao and Chen 2014), or queuing for services (Geng 2016; Xu et al. 2016).

*Exploitation of consumers' bounded rationality.* Surprise goods also allow the seller to make use of consumers' bounded rationality. In the context of promotions, Goldsmith and Amir (2010) found that consumers often react to the prospect of receiving a surprise good with automatic optimism, meaning they react as if they can expect to receive their preferred item.

With regard to the sale of surprise goods, Huang and Yu (2014) analyze consumers' tendency to rely on anecdotal reasoning, that is, to use single experiences of other consumers to infer probabilities of receiving specific items. Such anecdotal reasoning can lead to an overestimation of the likelihood of receiving a preferred item, and thus to an overvaluation of the surprise good. Furthermore, a recent paper by Zheng, Pan, and Carrillo (2019) introduces consumers' salient thinking behavior in an analysis on probabilistic selling in vertically differentiated markets, that is, markets where items differ in quality. Because consumers' attention capacity is limited, they overweight attributes that are salient. Therefore, a seller can use a surprise good to direct consumers' attention to quality, and then raise his/her profits by charging higher prices for quality.

*Risk of cannibalization.* Overall, many advantages of surprise selling are related to the seller's ability to charge different prices for surprise goods and transparent goods. However, one problem of such price discrimination is cannibalization (Rice, Fay, and Xie 2014), particularly when customers are strategic (Jerath, Netessine, and Veeraraghavan 2009), or both types of goods are sold through the same channel (e.g. online) (Granados, Han, and Zhang 2018). Thus, introducing a discounted surprise good bears the risk of reducing demand for transparent goods, which could ultimately lower profits. When selling probabilistic goods in horizontally differentiated markets, Fay and Xie (2008) recommend to assign equal probabilities to all component goods, as otherwise, the cheaper probabilistic good would likely cannibalize transparent sales of those options that are highly probable. Further drivers of cannibalization are a lack of brand loyalty (Fay 2008), a low degree of opacity (Shapiro and Shi 2008), low search costs, a high price difference between surprise and transparent goods, and an overall high price-sensitivity of consumers (Granados, Han, and Zhang 2018).

### *2.2.2 Drivers and barriers of surprise good purchases*

Research that focuses on consumer behavior regarding the purchase of surprise goods is scarce.

The above-described quantitative studies build their models predominantly on the assumption that consumers purchase surprise goods due to a price advantage. Some studies incorporate further behavioral aspects of consumer behavior, such as bounded rationality (Huang and Yu 2014), risk-aversion (Fay, Xie, and Feng 2015), anticipation of regret (Chao, Liu, and Zhan 2016), pessimism (Elmachtoub and Hamilton 2017), salient thinking (Zheng, Pan, and Carrillo 2019), or strategic behavior (Jerath, Netessine, and Veeraraghavan 2010) (compare Table 8). However, these studies aim at identifying consequences for the seller, given that consumers display the mentioned behavior, and do not examine when or why such consumer behavior actually occurs. While the research articles make clear that the considered types of consumer behavior or consumer thinking-styles are relevant and prevalent in the marketplace, the authors do not justify why they incorporate one specific facet instead of another. Thus, while it is reasonable to assume that the considered aspects play a role in consumers' purchase behavior of surprise goods, these studies do not offer an empirical validation.

Two exceptions are Fan and Jiang (2018) and a working paper by Kovacheva, Nikolova, and Lamberton (2019). Both also consider a specific consumer characteristic, namely, consumers' desire for control over the purchase outcome. But in contrast to the above-mentioned quantitative papers, they use consumer experiments to analyze to what extent consumers' desire for control influences their propensity to purchase surprise goods. Fan and Jiang (2018) focus on consumers' social relationships and find that socially excluded consumers suffer from a thwarted sense of personal control, which decreases their likelihood to purchase a surprise good. Kovacheva, Nikolova, and Lamberton (2019) study the role of gender and argue that because of their generally higher need for control, men are less inclined than women to purchase surprise goods.

Source	Method	Consumer characteristic	Dependent variable	Main findings
Chao, Liu and Zhan (2016)	Modelling	Anticipation of regret	Profitability of surprise selling	Counterintuitive finding of “reverse quality discrimination”: anticipation of regret reduces the perceived quality of a surprise good. This increases perceived differentiation between surprise goods and transparent goods, leading to higher profits.
Elmachetoub and Hamilton (2017)	Modelling	Pessimistic vs. risk-neutral consumers	Surprise selling vs. discriminatory pricing (=use of different prices for different items)	When customers are pessimistic (risk-neutral), surprise selling always dominates discriminatory pricing (only dominates discriminatory pricing when item valuations take only two values (high or low)).
Fay et al. (2015)	Modelling	Risk-averse consumers	Impact of surprise selling on type and number of products a retailer should carry	Surprise selling can be a substitute or complement to new product introductions. When demand is asymmetric (i.e., most customers prefer one product over the other), risk aversion decreases the advantage of surprise selling.
Fan and Jiang (2018)	Scenario experiments	Consumers’ social relationships / need for personal control	Attitude towards surprise selling	Due to a thwarted sense of control, socially excluded consumers exhibit less favorable attitudes towards surprise selling.
Huang and Yu (2014)	Modelling	Consumers’ use of anecdotal reasoning	Profitability of surprise selling with vertically differentiated goods	Due to bounded rationality, consumers rely on anecdotal reasoning and therefore overestimate the likelihood of receiving a superior product. This allows sellers to charge higher prices for the surprise good.
Jerath et al (2010)	Modelling	Strategic consumers	Last-minute selling vs. surprise selling	Direct last-minute sales are preferred over surprise selling when consumer valuations for travel are high or there is little service differentiation between competing service providers, or both; otherwise, surprise selling dominates.
Kovacheva et al. (2019)	Field and lab experiments	Consumers’ desire for agency over the purchase outcome → Gender	Affinity for surprise goods	Due to their higher agentic proclivities, men are less likely to opt for a surprise offering and do not respond as positively to the experience of such an offering as women do.
Zheng, Pan, and Carillo (2019)	Modelling	Salient thinking	Profitability of surprise selling with vertically differentiated goods	Sellers can exploit consumers’ salient thinking behavior and design surprise goods that draw consumers’ attention towards quality, thereby directing them to the choice option that is most profitable for the seller.

**Table 8: Consumer characteristics that impact the purchase of surprise goods**

Apart from these two research articles, there are a few domain-specific studies that investigate consumer reasons for (refraining from) the purchase of surprise travel products (flight, hotels; compare Table 9) and surprise subscription boxes (compare Table 10). This nascent research examines consumers' perceptions and expectations regarding the benefits and risks of such offers. Overall, these mostly qualitative studies confirm the assumption that consumers associate surprise purchases with increased risk. Consequently, trust in the offer and the retailer is an important determinant of surprise purchases (Chen and Yuan 2014; Chen and Yuan 2016; Gupta, Eilert, and Gentry 2018; Woo and Ramkumar 2018). The seller can mitigate perceived risk through a free-return option (Bischof, Boettger, and Rudolph 2019), or the provision of further information (Chen, Jai, and Yuan 2017), for instance in form of reviews from other customers (Xie, Anderson, and Verma 2017; Xie, Verma, and Anderson 2016). The most important consumer concern is whether the surprise good will deliver sufficient value. The amount of discount was thus shown to be an important driver of booking surprise travel offers (Chen, Jai, and Yuan 2017; Chen and Yuan 2014; Chen and Yuan 2016), but at the same times leads to a strong reduction of expectations (Huang, Chen, and Lai 2018).

In the area of surprise subscription boxes, research demonstrates that these deliver value beyond the realization of savings, as consumers enjoy the purchase experience and feel delight if they are satisfied with the content (Ben Mimoun, Garnier, and Depledte 2015; Gupta, Eilert, and Gentry 2018).

Source	Method	Main findings
Chen and Yuan (2014)	Focus groups interviews	Main customer benefits of opaque travel bookings are savings and fun. Main risks of opaque travel bookings are insufficient value, uncertainty about product quality or performance, and potential hidden fees.
Chen and Yuan (2016)	Survey	The intention to book an opaque travel offer is driven by a positive value assessment, and reduced by uncertainty about product quality and website trustworthiness.
Chen et al. (2017)	Survey	Higher information levels increase perceived benefits and decrease perceived risks of opaque travel offers, which increases overall value assessment and purchase intentions.
Huang et al. (2018)	Scenario experiments	Consumers expect less of an opaque hotel than of a transparent hotel of the same category, particularly when it comes to high-quality offers (i.e., 5-star hotels).
Xie et al. (2016; 2017)	Choice-based conjoint analyses	Customers are more price-sensitive towards opaque hotels; membership in a hotel loyalty program reduces preference for opaque hotel bookings; guest review scores have a higher impact on opaque than transparent hotel bookings.

**Table 9: Research on surprise travel products**

Source	Method	Main findings
Ben-Mimoun et al. (2015)	Netnographic video analysis	Surprise boxes can provide value with regard to all eight value dimensions defined by Holbrook (1999) (i.e., efficiency, play, excellence, aesthetics, status, ethics, esteem and spirituality).
Bischof et al. (2019)	Scenario experiments	Due to increased risk, consumers prefer longer delivery intervals for surprise subscriptions than for subscriptions with fully-specified content. Retailers can mitigate perceived risk by offering a free-return option.
Gupta et al. (2018)	In-depth interviews	Subscribers profit from a positive feeling of anticipation and immersion when receiving a surprise box. However, final satisfaction depends on satisfaction with the content. Consequences of satisfaction are delight, sharing of the experience to help other customers, greater trust in the retailer and a stronger customer-retailer relationship. Consequences of dissatisfaction are disappointment, re-gifting, lower trust in the retailer and a weaker customer-retailer relationship.
Woo and Ramkumar (2018)	Survey	American subscribers of beauty and fashion subscription services are more likely to be female with high levels of e-tailer trust and fashion consciousness. Age and exploratory product acquisition tendencies do not have a significant influence on subscription likelihood.

**Table 10: Research on surprise subscription boxes**

While one could deduct that these benefits also apply to other categories of surprise goods, there is no generic experimental research in this regard.

To date – to the best of my knowledge –, Hill, Fombelle, and Sirianni (2016) have published the only peer-reviewed research article that experimentally examines how offering surprise goods impacts consumer feelings and purchase propensity. However, they focus on one specific emotion – curiosity – and demonstrate that mystery-appeals of surprise goods trigger curiosity, which then increases purchase motivation.

### *2.2.3 Free surprise goods and surprise prices*

While studies on the purchase of surprise goods are scarce, there is research that examines how certain consumer characteristics or situational variables affect consumers' response towards surprise goods as customer incentives (Duke, Goldsmith, and Amir 2018; Laran and Tsiros 2013), or towards (potentially) receiving a free surprise good in a lottery (Chen 2016; Prendergast and Thompson 2008).

Companies use surprise goods in form of incentives, rewards or prizes for promotions such as raffles or giveaways, and other customer-related activities, such as loyalty programs. Usually, the aim of free surprise goods is to motivate customers to make a purchase, or to reward them for certain actions (e.g. for sharing information, spreading word-of-mouth etc.). In this context, surprise can again result from expectation-disconfirmation (i.e., from receiving an unexpected gift or reward) as well as uncertainty-resolution (i.e., from receiving an uncertain gift or reward) (compare chapter 2.1.1). The same applies to surprise prices (i.e., unexpected or uncertain discounts), which are also frequently employed to incentivize purchases. Table 11 provides an overview about relevant research articles that examine the use and effects of free surprise goods and surprise prices.

	<b>Surprise as a result of expectation-disconfirmation</b>	<b>Surprise as a result of uncertainty-resolution</b>
Surprise incentives/ non-monetary rewards	Hwang and Mattila (2017) Kim and Baker (2019) Kim and Mattila (2010) Wilson et al. (2005) Wu, Mattila and Hanks (2015) Valenzuela, Mellers, and Strebel (2010)	Chen (2016) Duke, Goldsmith, and Amir (2018; Exp. 4) Goldsmith and Amir (2010) Kurtz, Wilson, and Gilbert (2007) Laran and Tsiros (2013) Lee and Qiu (2009) Shen, Fishbach and Hsee (2015) van Dijk and Zeelenberg (2007)
Surprise prices/ monetary rewards	Ailawadi et al. (2014) Arkes et al. (1994) Dutta et al. (2019) Fiore et al. (2014) Heilmann, Nakomoto and Rao (2002) Janakiraman, Meyer, and Morales (2006) Soman and Cheema (2001)	Alavi, Bornemann and Wieseke (2015) Choi and Kim (2007) Choi, Stanyer and Kim (2010) Choi et al. (2013) Dhar, Gonzalez-Vallejo and Soman (1995) Duke, Goldsmith, and Amir (2018; Exp. 1-3) Hill, Fombelle, and Sirianni (2016; Exp. 2) Kamleitner, Mandel and Dhami (2011) Mazar, Shampanier and Ariely (2015) Shen, Hsee and Talloen (2018)

**Table 11: Research articles about the use and effects of free surprise goods and surprise prices**

*Effects of unexpected incentives.* Unexpected incentives can lead to more favorable customer reactions than expected incentives. For instance, Wu, Mattila, and Hanks (2015) found that a surprise gift (here: an unexpected free dessert at a restaurant) is more effective than a regular discount (here: a frequent membership discount) for enhancing customer satisfaction and delight and attenuating customer frustration, particularly when customers' cumulative satisfaction is low. Furthermore, such an increase in satisfaction due to an unexpected gift is independent from consumers' pre-consumption mood (Kim and Mattila 2010).

However, individual consumer reactions to unexpected incentives may vary, depending on contextual factors, such as culture or attribution of the incentive. For instance, Westerns feel more surprise and pleasure about an unexpected gift than East Asians, particularly when the gift can be ascribed to personal efforts. In contrast, East Asians prefer unexpected gifts that can be attributed to good luck (Hwang and Mattila 2017; Valenzuela, Mellers, and Strebel 2010).

The most common form of unexpected incentives are discounts. If consumers discover a discount that they have not expected, they buy more than if they had known there would be a discount: their shopping basket increases because the unexpected savings on

the discounted item increase its purchase likelihood as well as spendings on other, unrelated items, such as treats (Heilman, Nakamoto, and Rao 2002; Janakiraman, Meyer, and Morales 2006).

A similar increase of purchases occurs if consumers receive unexpected financial rewards: consumers experience these as windfall gains, which were not part of their mental accounting budget, and are therefore easily spent (Arkes et al. 1994; Soman and Cheema 2001).

While such unexpected gains can be considered a pleasant surprise (Heilman, Nakamoto, and Rao 2002), surprise incentives can also backfire. First, an unexpected financial reward represents an extrinsic motivation, and might thus compromise intrinsic motivation for a behavior, such as participating in a survey (Fiore et al. 2014; Experiments 1 and 2). Second, surprise gains might be perceived as unfair, particularly when not all customers profit from an unexpected incentive, and the allocation of the incentives seems unjustified (Kim and Baker 2019). Third, surprise gains might make customers suspicious of a provider's good intentions. In particular, Dutta et al. (2019) examined customer reactions to a surprise refund – that is, a refund over and above the promised refund – from a low-price guarantee retailer (i.e., a retailer who refunds the price difference if a customer finds the purchased product at a cheaper price somewhere else). They demonstrate that large surprise gains can boomerang: customers may feel tricked and doubt the honesty of the retailer with regard to the low-price guarantee, which lowers their future purchase intentions. Thus, even pleasant surprises can have negative consequences, particularly if they are intended to compensate an unpleasant event.

*Effects of uncertain incentives.* Another form of surprise incentives are incentives that are uncertain, in the sense that their exact type or amount is initially unclear.

For instance, uncertain or “gambled” discounts are only determined at the moment of purchase, when customers are about to pay. For the seller, uncertain discounts bear various advantages: they can lead to higher sales than equally costly transparent discounts (Dhar, Gonzalez-Vallejo, and Soman 1995; Mazar, Shampanier, and Ariely 2016) without reducing consumers' reference price (Alavi, Bornemann, and Wieseke 2015) or the believability of the regular price (Choi, Stanyer, and Kim 2010). Uncertain discounts are also better at stimulating repeat purchases, even when their expected value is lower than the value of a certain discount (Shen, Hsee, and Talloen 2018). In a study on uncertain conditional rebates (i.e., rebates that are only granted under a condition whose

occurrence is uncertain, e.g. a football team winning the world cup), Ailawadi et al. (2014) further show that such conditional rebates are more cost-effective than transparent rebates with regard to fighting competition. They also identify important impact factors on consumer proneness for uncertain conditional rebates: perceived savings, entertainment, perceived thinking costs, gambling proneness, and involvement with the specific event that determines whether the rebate is granted. They thereby demonstrate that uncertain discounts can have benefits that go beyond the realization of savings.

However, uncertain discounts can also have negative effects. Consumers might doubt the credibility of the discount claims, particularly if they advertise high discounts (e.g., “up to 50%”) and are offered by high-priced retailers (Choi and Kim 2007). Furthermore, discounts below a reference level (e.g., a 10% discount when the average gambled discount is 15%) are perceived as unfair and reduce consumers’ enjoyment (Choi et al. 2013).

Uncertain surprise incentives can also be non-monetary, meaning that sellers use probabilistic or opaque goods as incentives. Compared to transparent goods, using surprise goods as incentives can have different positive effects.

As with the purchase of surprise goods, curiosity also drives preference for uncertain incentives. In an experiment where participants could choose between a monetary reward of €15, or a surprise reward in form of a sealed package, participants were more likely to choose the sealed package if they were highly curious about the content of the package, and the only way to find out what was inside was to opt for the package as a reward. Curiosity was highest when the experimenter gave additional information about the shape of the surprise reward, that is, when the degree of opacity of the surprise reward was medium instead of high (van Dijk and Zeelenberg 2007). This finding is in line with Loewenstein’s (1994) information-gap theory, that says that curiosity is the result of a knowledge gap and increases when an individual comes closer – but not too close – to closing this gap.

While getting a reward is always motivating, Shen, Fishbach, and Hsee (2015) demonstrate that consumers who focus on the process of pursuing a reward also experience excitement and even higher motivation if this reward is uncertain versus certain, even if the certain reward is of higher expected value.

Similarly, Kurtz, Wilson, and Gilbert (2007) found that consumers’ good mood from having won a prize lasted longer when they did not know which one of two prizes they

had won, even when compared with having won both prizes. Lee and Qiu (2009) support this finding: in their study, consumers who did not learn immediately which prize they had won in a lucky draw experienced greater positive feelings, which also lasted longer. This effect was most pronounced when the surprise prize was moderately opaque (i.e., a consumer electronics product worth \$30) versus highly opaque (i.e., a prize worth \$30) or probabilistic (i.e., a stereo speaker or a radio set, both worth \$30). The authors explain this by stating that imagining possible favorable prospects of an event (i.e., the possible prizes) is beneficial to consumers. Prospect imageability is highest for moderately opaque goods, because probabilistic goods are already defined, and highly opaque goods are difficult to imagine due to the infinity of possibilities.

Consumers often avoid uncertainty because they are not aware of these positive effects (Kurtz, Wilson, and Gilbert 2007; Ruan, Hsee, and Lu 2018). However, they display a preference for uncertainty when they decide in a less rational way. For instance, when consumers have an irrational belief in personal good luck, they evaluate the chance to win an opaque good as more positive than the chance to win a transparent good (Chen 2016). Furthermore, when making an affective (instead of a cognitive) decision, probabilistic purchase incentives increase purchase likelihood to a higher extent than certain incentives (Laran and Tsiros 2013). Similarly, a purchase incentive in form of a vertically-differentiated probabilistic good (e.g., 2 Hershey's kisses or a package of Godiva truffles) is as effective in increasing purchase likelihood as a purchase incentive in form of the superior component incentive (here, the package of Godiva truffles) when consumers decide without careful consideration (Goldsmith and Amir 2010).

Another driver of preference for uncertainty is consumers' decision making style: when consumers pay attention to the details (vs. the gist) of choice options, they are less risk averse and therefore more willing to accept uncertainty, e.g. to enter lotteries with prizes that are higher in value, but uncertain (Duke, Goldsmith, and Amir 2018).

To sum it up, effects of surprise incentives (both unexpected and uncertain incentives) can be positive or negative. Positive effects of surprise discounts are related to their ability to increase sales to a higher extent than comparable transparent discounts, and to cause fun and entertainment (Kamleitner, Mandel, and Dhami 2011); negative effects are attributed to the risk of disappointment and doubts about the credibility of the offer and the trustworthiness of the provider.

Non-financial surprise incentives (i.e., free surprise goods) can have beneficial effects on consumers' motivation and mood. Depending on the decision task and consumers' decision making style, they can also be perceived as more positive, and be more effective in stimulating purchases, than transparent incentives.

#### *2.2.4 Context effects of surprise goods*

Another much neglected aspect of surprise goods is that introducing them to the assortment also changes consumers' choice context. This can have considerable effects on consumers' decision-making, and final choice.

On the one hand, adding a further option to an assortment usually takes away market share from existing options. As mentioned in chapter 2.2.1, discounted surprise goods can cannibalize transparent goods, in the sense that some consumers buy the cheaper surprise good, but would also have bought a more expensive transparent good if no surprise good had been available.

On the other hand, adding a further option to an assortment can paradoxically also increase market share of an existing option. This is the case when the new option transforms the choice context in a way that is favorable for one of the existing options. The most prominent context effects are similarity-, attraction-, and compromise effects (c. Roederkerk, van Heerde, and Bijmolt 2011). The similarity effect (Tversky 1972) states that new options take away market share of similar existing options, meaning that options that "stand out" have an advantage. Attraction and compromise effects are often also called decoy effects. They describe that a new option can act as a decoy, meaning that the purpose of the option is not to be purchased itself, but to make another so-called target option look better. An option is a decoy if it is (relatively) inferior to the target, because context-superiority makes the target look more attractive (Huber, Payne, and Puto 1982), or if it changes the choice context in a way that makes the target a compromise between all other options (Simonson 1989).

Depending on their type and design, surprise goods could also lead to such context effects. As probabilistic goods add an additional synthetic choice option (i.e. an option that consists of other options) to the assortment, they could thereby turn one of the existing options into a decoy. For instance, some car rental companies offer a probabilistic good in form of a "special car" that will be either compact size or larger, but costs the same as a compact size car. Such a price-/quality design turns the option to buy a regular

compact car into a decoy and make consumers aware of the attractiveness of a larger car, because its advantages become more salient (c. Zheng, Pan, and Carrillo 2019).

Of course, other context effects with regard to the design of probabilistic goods are also imaginable. For instance, research has argued that if consumers assume the likelihood to receive option A to be higher than the likelihood to receive option B when buying a discounted probabilistic good, transparent sales of A are cannibalized because some consumers switch from buying A to buying the cheaper probabilistic good instead (Fay and Xie 2008; Jerath, Netessine, and Veeraraghavan 2009). At the same time, it could also be possible that sales of B increase due to the similarity effect, because from an abstract perspective, a lower component probability of B makes B less similar to the probabilistic good than A. However, apart from Zheng, Pan, and Carrillo (2019), there is no research that specifically addresses context effects in the domain of surprise selling.

Finally, surprise goods also change the context because they can alleviate consumers from making any choice at all. Research has shown that consumers value choice, but that too much choice can have detrimental effects. When facing too many options, consumers may experience negative feelings such as information overload or preference uncertainty, which can ultimately lead to decreased satisfaction and regret about the purchase decision (c. Chernev, Böckenholt, and Goodman (2015) for a review).

Probabilistic selling offers consumers who experience decision difficulties a possibility to receive a product without having to choose, and opaque selling saves the consumer from an evaluation of the product s/he is about to purchase. Instead of refraining from choice (Dhar 1997), consumers can thus decide to purchase a surprise good. This could result in receiving a product they would otherwise never have discovered, and thereby reshape their preferences in the future.

### **2.3 Conclusion and derivation of research questions**

Chapter 2.2.1 has shown that there is ample research that theoretically analyzes advantages of mixed surprise selling with discounted surprise goods. This research predominantly assumes that surprise goods are sold at a price advantage, that is, at a better price-quality ratio than transparent goods.

The reasoning behind this is the assumption that consumers prefer choice over no-choice, and certainty over uncertainty. Consequently, it is assumed that consumers demand a

price reduction for giving up choice and accepting the uncertainty related to surprise goods.

However, this assumption can be questioned. With regard to theory, research on consumer behavior has demonstrated that choice can also have negative effects on consumers (compare chapter 2.2.4), while uncertainty can sometimes be pleasant (compare chapter 2.2.3). Despite these findings, research that examines whether the purchase of surprise goods can be beneficial to consumers remains very limited (compare chapter 2.2.2).

From a practical viewpoint, surprise goods that do not offer a price advantage, such as curated vacations to secret destinations, or mystery brand editions, are prevalent in the market. However, there is no research that investigates whether it is recommendable for a seller to offer undiscounted surprise goods instead of transparent goods. For instance, should cookies brand Oreo create a mystery edition by hiding the flavor of one of its variants, or should it rather reveal the flavor of this product?

Here, a distinction between probabilistic and opaque goods is decisive. A probabilistic good represents an additional synthetic choice option, and therefore extends the assortment. In contrast, an opaque good can only be offered at the expense of the number of transparent goods: each item can only be either opaque, or transparent. This implies that each opaque good reduces the number of transparent goods of an assortment, and it is thus unclear whether implications for sales are favorable.

This research gap is the basis for research question 1:

*Research question 1: Should sellers offer undiscounted opaque goods, or should they rather offer all items as transparent goods?*

Research question 1 relates to the first research objective presented in the introduction and is answered in chapter 3.

As probabilistic goods represent an additional synthetic choice option in mixed probabilistic selling, they extend consumers' choice set, and change the choice context.

There is a plethora of research that shows that extending consumers' choice set by adding another transparent good to the assortment can lead to context effects that favor one

of the existing items (so-called decoy effects) (compare chapter 2.2.4). However, research that analyzes whether decoy effects can occur when a probabilistic good is added to the assortment is almost non-existent: Zheng, Pan, and Carrillo (2019) is the only research article that shows that a seller of vertically differentiated goods can meticulously design a probabilistic good in a way that increases consumers' likelihood of choosing the option that is most profitable for the seller.

This research gap is particularly interesting, as probabilistic goods not only add an additional option to the choice context, but also add a new virtual attribute to the transparent goods: their probability of allocation within the probabilistic good. If the probability of allocation impacts consumers' perception of the transparent good, this would mean that probabilistic goods can also be used as a context-managing tool in horizontally differentiated markets. While current research on mixed probabilistic selling in horizontally differentiated markets requests that probabilities are equally distributed to avoid negative cannibalization effects (Fay and Xie 2008), this restriction is obsolete when probabilistic goods are sold without a discount. Thus, sellers could then use probabilities as a tool to impact consumers' perception and preference for certain transparent goods.

These considerations are the basis for research question 2:

*Research question 2: Do allocation likelihoods of component goods impact consumers' choice likelihood and perception of transparent goods?*

Research question 2 relates to the second research objective presented in the introduction and is answered in chapter 4.

Furthermore, research has demonstrated the effectiveness of surprise goods as (purchase) incentives in a variety of contexts: they increase purchase likelihood when the purchase decision is affective (Laran and Tsiras 2013), stimulate repetition decisions (Shen, Hsee, and Talloen 2018), increase consumers' motivation to pursue rewards (Shen, Fishbach, and Hsee 2015), prolong consumers' positive mood (Kurtz, Wilson, and Gilbert 2007) and increase customer satisfaction while decreasing frustration (Wu, Mattila, and Hanks 2015) (compare chapter 2.2.3). However, all these advantages occurred in positive contexts (e.g. shopping, winning a prize etc.), and it is unclear how consumers react to surprise incentives in negative contexts (e.g., as a compensation for a price increase). As illustrated in chapter 2.2.3, even positive surprises such as unexpected discounts or gains can have negative effects, as they might lead consumers to

doubt the sellers' honesty and good intentions. As Dutta et al. (2019) showed, this was the case when consumers' had experienced that a seller had not kept up to his promise of offering the lowest prices in the market. Thus, the same negative reactions could occur when consumers encounter a price increase, that is, a deviation from what was agreed upon in a contract. As consumers do not expect a price increase for ongoing contracts, such an announcement then represents a negative surprise, and would probably lead to an increased feeling of dissatisfaction and disappointment (compare chapter 2.1.1). It is unclear whether a positive surprise – the provision of an incentive – could then counteract these emotions, or would rather raise consumer suspicions. Here, the type of incentive (e.g. financial incentive, in-kind incentive, fixed, choosable or uncertain incentive) could also play a role.

These considerations lead to research question 3:

*Research question 3: Do incentives reduce churn rates in the context of price increases, and if so, which type of incentive should be used?*

Research question 3 relates to the third research objective presented in the introduction and is answered in chapter 5.

### **3 Increasing Sales and Purchase Satisfaction through Offering Opaque Goods**

Opaque goods are goods whose exact identity is concealed until after purchase. Our research suggests that offering opaque goods may be a considerable opportunity for retailers to achieve additional sales while simultaneously increasing consumers' satisfaction with their purchase.

Using laboratory and field experiments, we show that consumers (a) evaluate the same goods more favorably when they receive them in opaque instead of transparent form, (b) may buy more when sellers present part of their product assortment opaquely as opposed to transparently, and (c) are more satisfied with their purchase. Our research addresses the nonfinancial consumer benefits of opaque offers and challenges the current assumption that opaque goods need to imply a price advantage to attract consumers.

#### **3.1 Introduction**

Every month Birchbox, a US online retailer with an estimated annual revenue of 200 million U.S. dollar (Rey 2016), sends boxes filled with samples of different beauty products to its numerous subscribers. The boxes are adapted to each customer's preferences but their exact content is not disclosed beforehand. Buyers of deal platform Groupon's "mystery deals" do not know what they will get either; however, when this deal was first launched, the 8,000 vouchers for any kind of household goods or small electronics were sold out in just a few hours (Brothers 2013). Similarly, large travel intermediaries such as Priceline or Hotwire offer flight and hotel bookings without disclosing the airline, itinerary, or the name of the hotel (Celik 2014, p. 114).

The above are a few examples of a growing number of firms selling opaque goods, which are products whose exact identity is concealed until after purchase (Fay 2008). In contrast to transparent goods (i.e., products sold under fully specified information), opaque goods carry uncertainty about their exact nature and attribute specifications. To date, research assumes that the primary reason why consumers accept this uncertainty is to make a bargain: either because they receive a discount (Jiang 2007) or because bounded rationality makes them expect to get one of the superior alternatives (Huang and Yu 2014).

However, current research so far neglects that from the consumer's perspective, opaque goods represent surprises. Consumers may buy opaque goods not only to save money,

but also out of sheer curiosity because curiosity increases purchase motivation (Hill, Fombelle, and Sirianni 2016), or for the pleasure of getting surprised because uncertainty can be exciting (Shen, Fishbach, and Hsee 2015). When such motives are salient, we assume that consumers may buy opaque goods though they would not have bought the equivalent transparent good.

The fact that some companies frame opaqueness as the unique selling proposition of their product supports this idea. Whereas deals on Priceline and Hotwire mainly off-load unused capacities to price-sensitive travelers, start-ups like Pack Up + Go purposefully create customized surprise vacations whose destinations and other details are only revealed once the trip starts (“The catch? Your destination is a surprise. Be adventurous. Be spontaneous. Embrace the unknown.” (PackUpGo 2018)). Similarly, established fast-moving consumer goods (FMCG) brands such as Haribo (confectionary), Mueller (dairy products), Oreo (cookies), or TreacleMoon (body care), or subscription boxes like BoxOfHappies (handmade products by artists) positively emphasize the surprise component of their offer (see Appendix B.1).

The post-purchase evaluation of opaque goods likely differs from that of the equivalent transparent goods. On the one hand, opaque goods do not require consumers to compare products with other alternatives and to make an evaluation beforehand, thus preventing the formation of specific expectations. This alteration of the purchase process, with the additional element of surprise, may lead to an enhanced purchase experience. On the other hand, opaque goods might also disappoint because consumers face the obvious risk of purchasing unwanted products.

In the following, we start with a short overview of the current research on opaque selling (i.e., the selling of opaque goods) before discussing the role of risk in specifying the conditions under which consumers will generally consider purchasing opaque goods. We then present different nonfinancial consumer benefits that may motivate consumers to purchase undiscounted opaque goods.

The aim of the present research is to examine whether and how opaque goods affect overall sales and purchase satisfaction in the absence of financial benefits. To explore purchase motives and to measure sales and consumers’ purchase reactions, we conducted three experiments where the same goods were offered either opaquely (i.e., as opaque goods) or transparently (i.e., as transparent goods). To the best of our knowledge,

our research is the first to investigate the effect of regularly priced opaque goods on consumers' purchase quantity and satisfaction.

Our findings have important research implications. We challenge the current assumption that the uncertainty inherent to opaque goods is a “damage” of the good, which needs to be compensated for through a price reduction (Rice, Fay, and Xie 2014). We also argue that it can be reasonable to grant consumers right to return, whereas other research considers this to be incompatible with the idea of opaque goods (e.g., Post and Spann 2012). Our results suggest important implications for managers and retailers. While earlier research has demonstrated the profitability of using opaque goods to exploit consumer surplus (Jiang 2007) and idle capacity (Fay and Xie 2015), our findings show that opaque goods are also able to stimulate new purchase motives, and thereby increase sales and purchase satisfaction, independent of any discounts.

## **3.2 Theoretical background and hypotheses**

### *3.2.1 Opaque selling*

An *opaque good* (also referred to as *probabilistic good*) is “a product whose identity is concealed from consumers until after purchase” (Fay 2008, p. 59). Opaque selling (i.e., offering opaque goods) has various advantages for sellers. By assigning items to consumers instead of letting them choose themselves, sellers profit from reduced demand uncertainty and a more efficient allocation and utilization of inventory (Elmachtoub and Wei 2015; Fay and Xie 2015; Rice, Fay, and Xie 2014) and capacities (Fay and Xie 2008; Gönsch and Steinhardt 2013; Wu and Wu 2015).

To compensate consumers for giving up their right to choose and for accepting the corresponding uncertainty, prices for opaque goods are usually lower than prices for transparent goods (e.g., Rice, Fay, and Xie 2014); thus, sellers can price discriminate between consumers with weak preferences and those with strong preferences, because the latter are more likely willing to pay a price premium for choosing their favorite product, that is, for buying transparently (Fay and Xie 2008; Jiang 2007; Shapiro and Shi 2008). Depending on specific market conditions, such as the degree of heterogeneity of consumers' preference strengths or differentiation of market offers, opaque selling can outperform other forms of price discrimination, such as markdown selling (Rice, Fay, and Xie 2014), advance selling (Fay and Xie 2010) or last-minute selling (Jerath, Netessine, and Veeraraghavan 2010; Ren and Huang 2017). Overall, various studies have demonstrated

that price discrimination via opaque selling can increase revenue through market expansion by attracting a new segment of price-sensitive customers (Anderson and Xie 2014; Fay 2008; Jiang 2007; Post and Spann 2012).

However, a downside of lowering prices for opaque goods is that these discounted opaque goods might erode regular transparent prices (Sviokla 2003) and cannibalize transparent sales (Rice, Fay, and Xie 2014) particularly when both types of goods are sold through the same channel (e.g., online) (Granados, Han, and Zhang 2018). Drivers of opaque cannibalization are a lack of brand loyalty (Fay 2008), a low degree of opacity (Shapiro and Shi 2008), low search costs, a high price difference between opaque and transparent goods, and an overall high price-sensitivity of consumers (Granados, Han, and Zhang 2018).

However, the problem of eroding profits due to cannibalization effects only arises when opaque goods are sold as cheaper alternatives to transparent goods, which is the standard assumption in current research. An exception to this is Geng (2016), who economically models pure opaque selling (i.e., selling opaque goods only) in a congested system.

In contrast to current research, we investigate mixed opaque selling (i.e., selling both transparent and opaque goods) in the absence of discounts. In such context, although possible advantages of price discrimination disappear, sellers can still profit from enhanced inventory and capacity management while maintaining higher prices. Furthermore, sellers can still expand their market by attracting a new segment of consumers who are not more price-sensitive but who have other purchase motives from those of regular transparent buyers (see chapter 3.2.3 below).

### *3.2.2 Perceived risk and opaque goods*

Many sellers of opaque goods depict opaqueness positively, advertising the surprise component as an added value. However, opaque goods also carry the risk of disappointment: hidden product attributes can also represent a disadvantage or even a “damage” of the opaque good (Rice et al., 2014). Therefore, even though Fay and Xie (2008) demonstrate that opaque selling is generally suitable for a wide range of products and industries, sellers of opaque goods should make sure that the perceived risk of their offer is acceptable.

Following Bettman (1973), we understand perceived risk as consisting of the inherent risk of a product class (i.e., the degree of variance in perceived product quality and corresponding importance of product choice; amount of price/perceived expensiveness) and the degree to which the inherent risk can be handled by choosing (i.e., the amount of useful information a consumer confidently holds about a product class and her familiarity with the different options).

Given this definition, opacity is thus especially suitable for offers of generally low inherent risk, that is, for products (1) where all options are similar in important criteria (e.g., a restaurant offering a surprise menu as nonvegetarian/vegetarian); (2) where variety is appreciated by consumers (e.g., FMCG category) who are therefore also willing to buy less preferred products (Kahn and Ratner 2005); or (3) that are comparably low in price (e.g., a fashion store, but not a jewelry shop, selling surprise bracelets). Furthermore, opacity may be particularly considerable for sellers whose customers' risk-handling ability is low, for instance when customers have uncertain preferences (e.g., a beauty parlor offering a surprise manicure but not a surprise haircut), or are unfamiliar with the product class (e.g., offering surprise "get-to-know" products to new customers). Conversely, opaque goods are unlikely to generate any sales when customers are well informed and they perceive risk to be high (e.g., when purchasing expensive durables such as cars).

Therefore, the following motives to purchase opaque goods only apply in contexts where perceived purchase risk is generally low. Taking this as given, there are several reasons that might motivate consumers to buy opaque goods even in the absence of financial benefits.

### *3.2.3 The ease and fun of buying surprises*

One reason why opacity can be attractive is that it simplifies decision making. In transparent purchase situations, consumers usually need to evaluate their preferences to be able to decide which alternatives they should consider and choose (Horowitz and Louviere 1995). For consumers with known, defined preferences, choosing transparently is likely to generate the optimal outcome. However, choice can also be a difficult task due to preference uncertainty (Fischer, Luce, and Jia 2000) and information overload (Lee and Lee 2004), and the possibility of choice overload that may lead to choice deferral or – in case of choice – to decreased choice satisfaction and increased choice regret (e.g., Chernev, Böckenholt, and Goodman 2015). With opaque goods, consumers do not have

to determine their specific product attribute preferences and evaluate whether their selected product matches these best. Instead, they just have to make a yes-or-no decision about whether to buy an opaque good. Thus, buying opaque goods may be particularly convenient for consumers who want to avoid the described choice effort.

A second reason why opaque goods can be appealing is that consumers do not always have a certain purchase goal but often shop for experiential reasons: that is, to be entertained and to have fun (Babin, Darden, and Griffin 1994; Scarpi, Pizzi, and Visentin 2014), hoping to find stimulation and adventure (Arnold and Reynolds 2003). When such hedonic motivations are salient, fun and an enjoyable purchase experience may be more important than the purchase itself, with consumers looking for surprise instead of need fulfillment (Wolfenbarger and Gilly 2001). Opaque goods cater perfectly to this motivation by turning an otherwise regular shopping decision into a purchase experience that carries surprise and a certain level of excitement. When making affective decisions, consumers enjoy being surprised, and uncertainty in the purchase process increases their likelihood to purchase (Laran and Tsiras 2013). The enjoyable experience also stimulates unplanned purchases, which increases consumers' propensity to buy impulsively (Beatty and Ferrell 1998; Weinberg and Gottwald 1982).

A third reason for the appeal of opaque goods is that consumers are often optimistic when making affective decisions (i.e., in the absence of careful rational consideration), believing that an uncertain outcome will turn out positive (Goldsmith and Amir 2010). Thus they tend to assume that they will receive an opaque good they will like (Huang and Yu 2014). This optimism bias (e.g., Bracha and Brown 2012) is also strengthened by curiosity (Maner and Gerend 2007), another driver of consumers' purchase likelihood (Hill, Fombelle, and Sirianni 2016). Curiosity is linked to the reward center of the brain (Gruber, Gelman, and Ranganath 2014; Kidd and Hayden 2015), and because information can function as a reward (Marvin and Shohamy 2016), consumers may feel the urge to find out what the opaque good is to satisfy this curiosity (i.e., receive the reward) (Loewenstein 1994; van Dijk and Zeelenberg 2007).

Therefore, regardless of financial advantages, opaque goods may alleviate consumers' decision-making and offer a fun experience that generates positive emotions. Opaque goods may then stimulate sales by attracting consumers who appreciate these benefits. Consequently, opaque goods may address alternative purchase motives besides financial benefits.

*Hypothesis 1 (H<sub>1</sub>):* In the context of purchases that are generally perceived to be low in risk, offering both transparent and opaque goods leads to higher sales than offering only transparent goods.

Besides increasing sales, opaque goods may also increase consumers' post-purchase satisfaction (i.e., their satisfaction with their decision-making process and purchase outcome) and product evaluation. Shen, Fishbach, and Hsee (2015) demonstrated that consumers experience excitement and an increase in motivation, enjoyment, and satisfaction when they focus on pursuing an uncertain rather than a certain reward. Thus, consumers likely feel an increase of similar positive emotions when they decide about buying something uncertain versus something certain. During the decision process, they might generate mental images of different kinds of desirable things they might receive, a process that induces long-lasting positive feelings (Lee and Qiu 2009). The overall enjoyment of the purchase process and the reduction of cognitive strain are likely to leave consumers more satisfied with their purchase decision-making and consequently, with the overall purchase decision (Fitzsimons, Greenleaf, and Lehmann 1997).

The uncertainty inherent in the purchase of opaque goods – compared to the certainty in the purchase of the same transparent good – not only enhances the decision-making process but is also likely to increase satisfaction with the purchase outcome. Yang, Gu, and Galak (2016) demonstrated that consumers feel more pleasure about a positive outcome when they know that there was a (small) chance of a negative outcome than when they had no doubts about the positive outcome. Consequently, consumers are likely to feel more satisfied with an opaque good that turns out to meet their taste than with the same transparent good.

Research has also shown that uncertainty can favorably affect consumers' evaluations of the object of uncertainty. For instance, women rate potential dating partners as more attractive when they are uncertain whether the men like them than when they know they do (Whitchurch, Wilson, and Gilbert 2011); readers find a crime story more enjoyable when they are highly uncertain who the culprit is (Knobloch-Westerwick and Keplinger 2006); and a new activity seems more exciting when it is more uncertain how the experience will be (Hart, Goode, and Thomson 2011). When the uncertainty is resolved (i.e., when the opaque good is revealed), the positive emotions experienced before the revelation may be attributed to the product itself and may reflect on how it is evaluated (Gorn, Goldberg, and Basu 1993). Independent of the outcome, opaque goods thereby provide

a higher utility to consumers than transparent goods because consumers gain additional utility from (1) experiencing positive emotions while looking forward to the moment when the opaque good will be revealed (Loewenstein 1987), and (2) experiencing the moment of revelation. This uncertainty-creation-resolution process is hedonically beneficial: after the potential for a positive experience is built, the potential is realized, a process that generates a net positive experience (Ruan, Hsee, and Lu 2018). Once an opaque good is revealed, the utility derived from it will always be higher than the utility derived from the same transparent good because the uncertainty resolution utility always increases overall utility (Shen, Hsee, and Talloen 2018).

In light of these considerations, we propose the following two hypotheses:

*Hypothesis 2 (H<sub>2</sub>):* Post-purchase satisfaction (i.e., satisfaction with the purchase decision-making process and the purchase outcome) is higher for the purchase of opaque goods than for the equivalent transparent goods.

*Hypothesis 3 (H<sub>3</sub>):* Once revealed, consumers evaluate opaque goods better than the equivalent transparent goods.

### **3.3 Empirical studies**

#### *3.3.1 Study 1: Integrating opaque goods into the assortment*

*Design and procedure.* In order to test H<sub>1</sub>, we conducted a field experiment at a café that sells 18 different flavors of homemade ice cream (from traditional ones, such as vanilla or strawberry, to more special ones, such as apricot-passion fruit or white wine spritzer). All ice creams were sold in small nontransparent cups with a lid and could be consumed directly at the café or taken home in an insulated bag.

For a period of ten days, the café offered two additional mystery flavors called “Fruity Spectacle” and “Creamy Seduction” whose ingredients were only revealed after a purchase. After ten days, the café revealed the mystery and continued the sale of the two flavors in transparent form as “Fruity Spectacle: Passionfruit-Mango-Banana-Lime” and “Creamy Seduction: Nut Piémont-Chocolat-Caramel”. During the whole 30 days the ice cream was advertised using posters (see Figure 2) that were put up in front of the café and displays on the sales counter (see Appendix B.2 for pictures of the café). This was to make sure that advertising pressure and attention drawn to the ice cream category was held constant across all phases.

General poster / phase 1 (day 1 – 10)

**Do you know our ice cream cups?**

Fruity and creamy ice cream creations in a small or a large cup.



Poster of phase 2 (day 11 – 20)

**Get enchanted by our mystery flavors.**

A Fruity Spectacle ...  
or a Creamy Seduction?



Poster of phase 3 (day 21 – 30)

**We reveal our ice-cold secrets.**

Fruity Spectacle:  
Passionfruit, Mango, Banana and Lime

Creamy Seduction:  
Praline Noisettes Piémont,  
Chocolat Olivier and Caramel

Figure 2: Study 1: Promotional ice cream posters

We monitored sales for one month (during the ten-day mystery phase itself and ten days before and ten days after) and carefully documented relevant controls, particularly, the weather. Because the ice cream was sold in cups of two different sizes (small: €4.90/cup; large: €8.50/cup), we took ice cream revenue as the main dependent variable in addition to number of ice creams sold and share of customers buying ice cream. During the mystery phase, a research assistant, who was sitting at a table in the café, approached those customers who had bought ice cream and discretely asked them whether they would be willing to answer some questions regarding their purchase. The aim of the questionnaire was to find out more about the participants' purchase motives and the extent to which their choice had been affected by the opaque offer.

*Results and discussion.* During our monitored 30 days, 183 customers bought 291 small and 38 large ice cream cups, creating a total revenue of €1,748.90. As depicted in the overview in Table 12, average daily ice cream revenue and number of sold ice cream cups increased significantly in phase 2 (the mystery phase) and declined by more than 50% in phase 3 when the mystery flavors were revealed.

Key Results						
Phase (10 days)	Ø Ice cream revenue/day	Ø No. of ice cream cups sold/day	Ø No. of ice cream buyers/day (share)	Ø No. of opaque <sup>1)</sup> flavors sold /day (share)	Ø Number of customers/day <sup>2)</sup>	Ø Weather <sup>3)</sup>
Phase 1 (day 1 – 10) Pre-mystery phase	€56.13 *	10.5 *	5.5 * (5.8%)	-	94.6	3.8
<b>Phase 2 (day 11 – 20) Mystery phase</b>	<b>€80.24</b>	<b>15.2</b>	<b>8.0 (8.0%)</b>	<b>5.7 (37.5%)</b>	<b>100.0</b>	<b>4.2</b>
Phase 3 (day 21 – 30) Post-mystery phase	€38.52 ***	7.2 ***	4.8 ** (4.3%)	1.8 ** (25.0%)	111.7	3.9

\*\*\*  $p < .001$

\*\*  $p < .01$

\*  $p < .05$

Differences refer to Phase 2

<sup>1)</sup> Revealed in Phase 3

<sup>2)</sup> To control for foot traffic, we counted all customers at the café regardless of whether they purchased ice cream or not.

<sup>3)</sup> Weather was coded on a daily basis considering temperature and rainfall on a scale from 0 to 6, with 0 indicating unsuitable weather and 6 indicating ideal weather for purchasing ice cream.

**Table 12: Overview of results for key variables of the ice cream experiment**

To be precise, average daily revenue increased from €56.13 ( $SD = €24.87$ ) in phase 1 to €80.24 ( $SD = €24.52$ ) in phase 2, a significant increase ( $p < .05$ ), and then declined to €38.52 ( $SD = €18.44$ ) in phase 3, a significant decline compared to phase 2 ( $p < .001$ ). Similarly, average daily number of ice cream pots sold increased from 10.5 ( $SD = 4.8$ ) in phase 1 to 15.2 ( $SD = 4.4$ ) in phase 2 ( $p < .05$ ), and then decreased to 7.2 ( $SD = 3.3$ ) in phase 3, a significant reduction from phase 2 ( $p < .001$ ). Differences between phase 1 and phase 3, and differences in weather, were not significant.

Results of linear regression analysis revealed a significant effect of phases on ice cream revenue ( $R^2 = .447$ ; see Table 13 for comparison). The impact of weather was small and insignificant.

Variable	$\beta$	SE
Intercept	63.29 ***	12.06
Phase 1 (1/0)	-22.50 *	9.89
Phase 3 (1/0)	-40.51 ***	9.87
Weather	4.04	2.35
*** $p < .001$	$R^2$	.447
** $p < .01$	Adjusted $R^2$	.384
* $p < .05$	N	30

**Table 13: Estimation results of linear regression of the effect of phase (provision of mystery flavors) on ice cream revenue**

These results support  $H_1$ : offering opaque goods led to a significant increase in sales. The overall increase in revenue from phase 1 to phase 2 (€241.10) was roughly two-thirds of the revenue generated by the mystery flavors (€381.90), which indicates low cannibalization.

Ice cream is usually the product with the lowest sales share, with most customers buying cake, coffee, and chocolates. However, the average daily number of customers buying ice cream increased significantly from phase 1 to phase 2 (from 5.5 ( $SD = 2.5$ ) to 8.0 ( $SD = 2.0$ ,  $p < .05$ ), and then decreased significantly to 4.8 ( $SD = 2.3$ ) from phase 2 to phase 3 ( $p < .01$ ). Overall, the share of customers buying ice cream, as percentage of total customers of the café, increased by more than one third when the mystery flavors were introduced and was almost twice as high during the mystery phase than it was after (compare key results in Table 12, column 3).

More than one-third of the customers who answered our post-purchase questionnaire ( $n = 72$ ) stated that the mystery offer was the reason they bought an ice cream. Of the 31 interviewees who bought the ice cream for the first time, 20 chose a mystery flavor. This

indicates that a considerable part of the customers bought ice cream because the opaque flavors had picked their interest. After the opaque flavors were revealed (phase 3), their daily sales figures declined significantly, from 5.7 ( $SD = 2.8$ ) when they were mystery flavors to 1.8 ( $SD = 2.0$ ) when they were transparent flavors ( $p < .01$ ). The overall sales share of these two flavors within the assortment decreased from a share of 37.5% in phase 2 to 25% in phase 3.

Our survey further showed that impulse purchases were significantly more frequent for those who had chosen a mystery flavor (Fisher's exact test,  $p < .01$ ). Using a 7-point Likert scale, we measured that respondents who had bought mystery flavors were also significantly more curious about the opaque flavors ( $M_{\text{Opaque}} = 5.58$ ,  $SD = 1.17$  vs.  $M_{\text{Transparent}} = 4.50$ ,  $SD = 1.81$ ;  $p < .01$ ), while those who had opted for a transparent ice cream flavor were much more concerned about the risk of buying an opaque flavor that they might not like ( $M_{\text{Opaque}} = 1.67$ ,  $SD = .96$  vs.  $M_{\text{Transparent}} = 3.46$ ,  $SD = 2.19$ ;  $p < .001$ ).

These insights support the idea that opaque goods stimulate curiosity and impulse purchases, and they also illustrate that consumers with clearer preferences (planned purchase, dislike of certain flavors) tend to stick to transparent options.

### *3.3.2 Study 2: Effects of opaque vs. transparent goods on consumers' individual purchase quantity and post-purchase satisfaction*

*Design and procedure.* The aim of Study 2 was to test  $H_1$  in a different setting using a controlled environment and to collect more data on the purchase experience. We conducted an incentive-aligned laboratory experiment where participants made an actual purchase decision and reported their post-purchase satisfaction. We used two conditions: condition 1 employed the sale of transparent goods, and condition 2, the sale of the equivalent opaque goods. However, a comparison of post-purchase satisfaction between these two groups is biased because participants in the transparent condition only buy what they actually like, whereas those in the opaque condition might end up with a product they do not want or like. To circumvent this problem, we created a purchase scenario that included the right to return at the point of purchase so that the participants in both conditions would only have to buy products they actually wanted to have.

We conducted a laboratory experiment at a German university by selling a brand of cereal bars that most of our targeted group of participants did not know but would buy for €0.50 a bar (pretest,  $n = 40$ ). We recruited participants using posters that were put

up in the university building and the cafeteria. The posters invited all readers who liked cereal bars to sign up for a 10-minute experiment at the Economics Faculty and that participation will be compensated with €5 cash.

Each participant took the experiment separately. After entering the room, a research assistant welcomed the participants and told them that they had the opportunity to buy cereal bars for €0.50 apiece. In condition 1 (transparent condition), participants faced a table displaying 25 cereal bars in five different flavors. The research assistant showed them a taste box containing one bar of each flavor and told them that they could buy this prepared taste box (price: €2.50), but that they were also free to remove bars from the box (- €0.50/bar), exchange flavors (for free), or add bars to the box (+ €0.50/bar). Participants could then make their choice, including the option to buy nothing. Afterwards, they were asked to complete a short questionnaire.

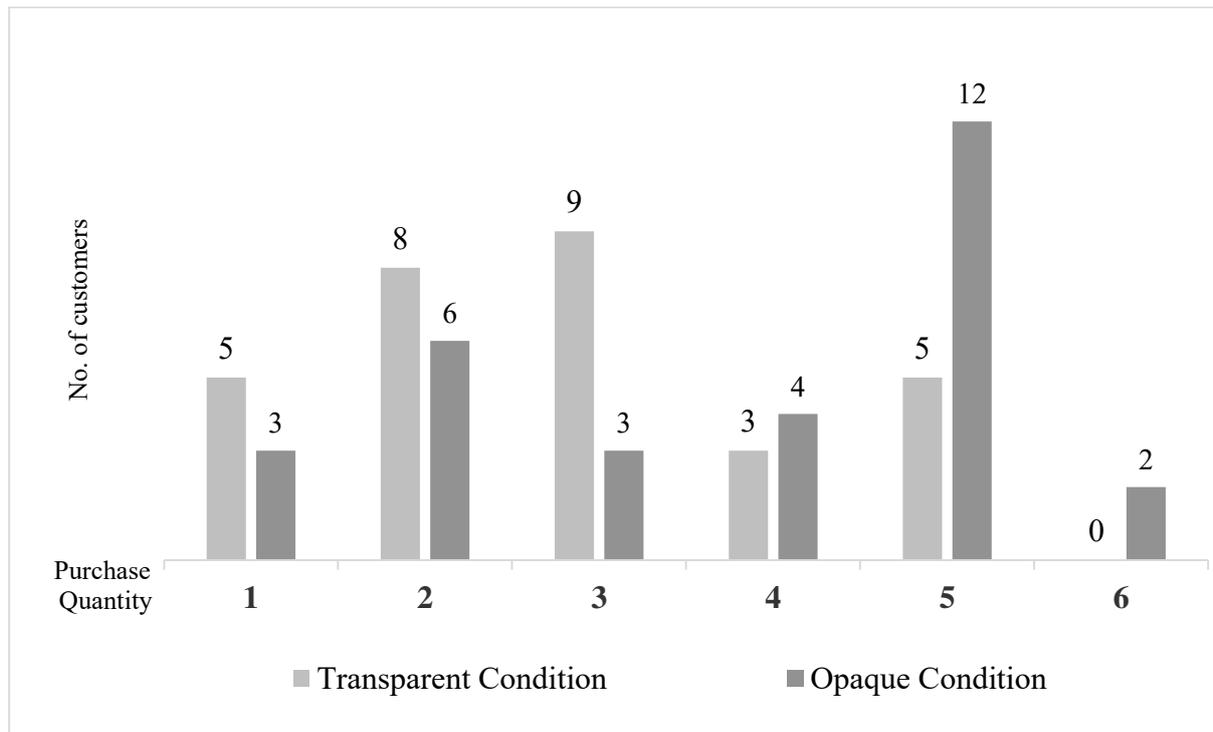
In the questionnaire, we asked participants to state their post-purchase satisfaction, that is, their satisfaction with their purchase decision and decision-making process. We used an adapted version of the purchase regret scale by Tsiros and Mittal (2000) and two suitable items of the decision satisfaction scale by Fitzsimons (2000), with 1 indicating low and 7 indicating high satisfaction (see Table 14 for an overview of the items used). Finally, we collected basic demographics and important controls (i.e., allergies, hunger, cereal bar consumption habits, price perception).

Condition 2 (opaque condition) differed from condition 1 in two respects. First, participants faced an empty table (except for the taste box) and the research assistant showed them only one cereal bar as an example and explained that the taste box would contain this bar and four more bars in other flavors but without specifying what these flavors were. Second, the offered taste box was initially closed so that their content could not be seen. Participants could then decide whether they wanted to buy the taste box for €2.50, with the possibility to reverse their decision afterwards, or change and configure the content of the box as they wished under the same terms as in condition 1 (free to remove bars from the box (- €0.50/bar), exchange flavors (for free), or add bars to the box (+ €0.50/bar). Finally, they were asked to answer the same questionnaire used in condition 1 (see Appendix B.3 for an illustration of the set-up).

Satisfaction	Item (1 = strongly disagree, 7 = strongly agree)	Adapted from
... with the purchase decision	I am very satisfied with my purchase decision (S1).	Tsiros and Mittal (2000), p.415
	In retrospect, I regret my purchase decision (S2, inverted item).	
	I should have decided differently (S3, inverted item).	
... with the purchase decision-making process	I found the process of deciding what to buy interesting (D1).	Fitzsimons (2000), p.265
	I am very satisfied with my experience of deciding what to buy (D2).	

**Table 14: Items used for measuring post-purchase satisfaction**

*Results and discussion.* Sixty participants (students and university staff; 38 female, 22 male; average age 24 years) were randomly assigned to one of the two conditions. Although they had no obligation to purchase, all participants decided to buy at least one cereal bar. The average purchase quantity differed between the conditions: participants in the opaque condition (condition 2) bought approximately one bar more per person than participants in the transparent condition (condition 1) ( $M_{\text{Opaque}} = 3.73$ ,  $SD = 1.58$  vs.  $M_{\text{Transparent}} = 2.83$ ,  $SD = 1.32$ ). This difference is significant ( $p < .05$ ), which again supports  $H_1$ . Figure 3 shows the number of purchased bars per condition: almost half of the participants in the opaque condition purchased a full box (= 5 bars) or even more (= 6 bars), whereas in the transparent condition, only one in six participants bought a full box, and all the others bought less.



**Figure 3: Study 2: Purchase quantities by condition**

Although purchase decision satisfaction (Cronbach's- $\alpha = .758$ ) was relatively high in both conditions, participants in the opaque condition still felt significantly more satisfied than those in the transparent condition ( $M_{\text{Opaque}} = 6.02$ ,  $SD = 0.89$  vs.  $M_{\text{Transparent}} = 5.39$ ,  $SD = 1.29$ ;  $p < .05$ ). They were also significantly more satisfied with their decision-making process, evaluating the decision making process to be more interesting ( $M_{\text{Opaque}} = 5.07$ ,  $SD = 1.31$  vs.  $M_{\text{Transparent}} = 4.30$ ,  $SD = 1.39$ ;  $p < .05$ ) and being more satisfied with the decision-making experience ( $M_{\text{Opaque}} = 5.70$ ,  $SD = 0.79$  vs.  $M_{\text{Transparent}} = 4.37$ ,  $SD = 1.88$ ;  $p < .01$ ). A careful check of controls showed that these results could not be ascribed to any of the considered interfering variables (i.e., allergies, hunger, cereal bar consumption habits, price perception), and the choice itself (i.e., chosen number and flavors of bars) did not impact post-purchase satisfaction, neither. Therefore, the results support  $H_2$ .

While at first glance the option to change the number and/or kinds of products contained in the taste box might seem contrary to the purpose of a prepared box, this set-up enables a fair comparison of opaque products vs. equivalent transparent goods and makes our results applicable to real-life contexts. Many opaque goods are ordered online (e.g., the above-mentioned subscription boxes or mystery deals) and are therefore subject to a legal right to return found in most countries. Providing the opportunity to return the good eliminates the risk associated with opaque goods and serves as a signal of quality.

Our manipulation was very subtle. The only difference between the conditions was that 80% of the content of the box in the opaque condition (2) was only revealed after the participants had stated, knowing that they could reverse their decision, that they intended to make a purchase. Despite this rather soft manipulation, our data indicate significant positive differences with regard to the highly relevant sales dimensions of sales volume and post-purchase satisfaction. With the next study, we aimed to extend the result of higher post-purchase satisfaction by examining whether consumers generally like opaque goods better than the equivalent transparent goods.

### 3.3.3 Study 3: Evaluations of opaque vs. transparent goods

*Design and Procedure.* In order to test  $H_3$ , we distributed 60 “mini pre-Christmas” calendars, each consisting of six sachets (labeled 1–6) containing different small gifts (1: a Christmas pencil, 2: two small Christmas chocolates, 3: a Christmas eraser, 4: a Christmas jelly lollipop, 5: a Christmas puzzle, 6: a tiny Christmas calendar with chocolate lentils) to students at a local university. In each calendar, three of the gifts were wrapped

in brown paper, making them into a surprise, while the other three had transparent packaging that showed the content (see Appendix B.4). As there were  $\binom{6}{3} = 20$  possibilities to configure a calendar, we used each possible wrapping scheme three times and noted down each configuration. This way, we avoided data distortions due to order effects of wrappings or interaction effects between products and wrappings. Using both between-subject (60 calendars) and within-subject (6 sachets) designs, we were also able to reduce noise caused by individual differences among the participants, such as affinity for surprises. The experiment lasted one week. On day 1, we carefully explained the task to students of a graduate marketing class and then handed out nontransparent parcels to 60 students who volunteered to participate. We instructed them to leave the parcels closed until they got home and to not exchange experiences with each other until the end of the experiment. Each parcel contained a calendar with a specific number (1–60), the task instructions, and a note with a link to an online survey. The task was to open one sachet a day and to answer a short survey each time.

The survey started with asking for the number of the calendar and of the opened sachet before requesting participants to state on a scale from 1 (not at all) to 10 (very much) how curious they felt when opening the sachet, how great their anticipation was when it came to opening it, how much they liked the product, and how happy they were about it. Then participants had to rate whether they perceived the respective product to be fancy, trendy, funny, cool, and/or pretty; in other words, they had to evaluate the Christmas gadgets according to positive applicable attributes. On the last day, we additionally collected demographics and further controls.

*Results and discussion.* In sum, we collected 317 valid responses: 52 participants answered all calendar questions completely (day 1–day 6), one participant answered from day 1–4, and one answered only on day 1. Six calendars never got a response. As intended, curiosity was much higher when participants were about to open an opaque as opposed to a transparent sachet ( $M_{\text{Opaque}} = 7.26$ ,  $SD = 2.03$  vs.  $M_{\text{Transparent}} = 3.38$ ,  $SD = 2.39$ ,  $p < .001$ ). We used curiosity as a manipulation check and excluded three outlier responses in the transparent condition: participants who indicated a curiosity level of 9 or 10 (i.e., more than 1.5 interquartile ranges above the 75<sup>th</sup> percentile) for the pencil or the eraser because these extremely high levels of curiosity for these transparently wrapped products were implausible.

This resulted in 156 responses for gifts wrapped in transparent packaging and 158 for gifts in opaque packaging that could be analyzed for differences with regard to the measured dimensions. We captured product evaluation via general product appeal, which consisted of product liking and happiness about the product (Table 15: items 2 and 3; Cronbach's- $\alpha$  = .955) and overall assessment of the five favorable product attributes (Table 15: items 4a–4e; Cronbach's- $\alpha$  = .885).

Questions (1 = not at all; 10 = very much)	Transparent wrapping n = 156 (SD)	Opaque wrapping n = 158 (SD)	Sign. diff.
1 Did you feel pleasant anticipation when it came to opening the sachet?	<b>4.54</b> (2.61)	<b>6.97</b> (2.05)	***
2 How much do you like the product?	<b>5.26</b> (2.38)	<b>5.80</b> (2.42)	*
3 How happy are you about the product?	<b>5.06</b> (2.51)	<b>5.66</b> (2.55)	*
Please indicate, in your opinion, to what extent the following attributes apply to the product contained in today's sachet:			
4a Fancy	<b>4.96</b> (2.45)	<b>5.55</b> (2.57)	*
4b Trendy	<b>3.53</b> (2.38)	<b>4.05</b> (2.32)	*
4c Funny	<b>4.95</b> (2.63)	<b>5.74</b> (2.72)	**
4d Cool	<b>3.73</b> (2.58)	<b>4.30</b> (2.61)	*
4e Pretty	<b>4.62</b> (2.55)	<b>5.09</b> (2.55)	
*** $p < .001$			
** $p < .01$			
* $p \leq .05$			

**Table 15: Mean ratings for products wrapped transparently vs. opaquely**

With the exception of the attribute “pretty” ( $p = .097$ ), differences in mean ratings are significant for all measurements (see Table 15), with participants liking the opaque goods better, being happier about them, and evaluating their attributes more favorably. Pleasant anticipation was remarkably higher when participants were about to unwrap surprises (i.e., products wrapped opaquely) as opposed to disclosed gifts (i.e., products wrapped transparently). This result is not necessarily intuitive because participants might as well have felt comparable pleasant anticipation when facing the transparently wrapped products, knowing that they would now be able to eat the chocolate, play the puzzle, and so forth. However, it turned out that the main driver of pleasant anticipation was the uncertainty that was about to be resolved. This feeling of pleasant anticipation then reflected on the products: results of regression analysis indicated a highly significant positive impact of pleasant anticipation on general product appeal ( $\beta = .466, p < .001$ ) and overall attribute assessment ( $\beta = .343, p < .001$ ). We therefore tested mediation using PROCESS model 4 (Hayes 2013). Both the direct effect of opacity and the indirect effect of positive anticipation were significant regarding general product appeal ( $B_{\text{direct}} = .72, p < .01$ ;  $B_{\text{indirect}} = .53, p < .001$ ), and only the indirect effect was significant regarding overall attribute assessment ( $B_{\text{direct}} = .31, p = .20$ ;  $B_{\text{indirect}} = .37, p < .001$ ). Thus, positive anticipation (partially) mediates the effect of product opacity on product evaluation.

Study 3 therefore demonstrates that the simple change of handing consumers an opaquely packaged product instead of a transparently packaged one may be beneficial to consumers and may enhance their product evaluation. Thus Study 3 provides support for  $H_3$ .

### **3.4 General discussion**

#### *3.4.1 Research contribution*

Current research on opaque goods mainly takes an economic perspective (e.g., Anderson and Xie 2014; Jerath, Netessine, and Veeraraghavan 2010), demonstrating how sellers can use discounted opaque goods as a tool for price discrimination (e.g., Jiang 2007; Rice, Fay, and Xie 2014) and capacity balancing (e.g., Fay and Xie 2015; Wu and Wu 2015). In contrast, we investigate settings where opaque goods are priced the same as transparent goods, taking a consumer perspective and addressing non-financial benefits. We thereby contribute to the current state of research in several important ways.

First, we discuss consumer motives other than savings for purchasing opaque goods, a topic neglected in extant research. Second, we show that in contrast to current assumptions (e.g., Granados, Han, and Zhang 2018), consumers are willing to purchase opaque goods that are priced the same as transparent goods and that these purchases only mildly cannibalize transparent sales, resulting in an overall increase in revenue. Third, we show the beneficial effects of opaqueness by demonstrating how it positively affects consumers' purchase satisfaction and product evaluation.

More generally, our research adds to the growing body of literature on the positive effects of uncertainty (e.g., Ketelaar et al. 2016; Ruan, Hsee, and Lu 2018; Shen, Hsee, and Talloen 2018; Yang, Gu, and Galak 2016) by investigating the topic in the context of purchase behavior.

### *3.4.2 Managerial implications*

Our findings carry different important implications for practice. Most importantly, our research encourages retailers and local service providers to consider integrating opaque goods into their assortment. Chances that such integration will lead to additional sales are particularly high when the products being offered opaquely are suitable for a spontaneous purchase, such as most FMCG goods or generally low-priced goods or services: an appetizer or dessert at a restaurant, a drink at a bar, or a quick manicure at a beauty salon. Our research suggests that these offers do not need to be discounted to sell successfully. However, we discourage selling inferior goods (e.g., shelf warmers or out-of-date products) as undiscounted opaque goods because this would destroy the positive after-sales effects of opaque goods, leaving consumers disappointed and harming long-term sales.

A way to make sure that consumers do not end up dissatisfied is to offer a right to return. While right to return is not recommendable for discounted opaque goods because this would cannibalize regularly priced transparent sales, we argue that it can be a compelling tool to eliminate risk when using undiscounted opaque goods. This would increase consumers' probability of purchase, and in the end, overall sales. Research has shown that a lenient return policy in remote purchase environments (e.g., online retailing) serves as a signal of quality, leading to an increased probability of order and a decreased amount of decision difficulty (Wood 2001). This signaling is crucial for opaque goods as well because consumers might suspect sellers of using this format as a strategy to dispose of less attractive goods (c. Fay and Xie 2008, p. 685). By offering refunds, the

seller is not made worse off in case a consumer returns the good because the consumer would not have bought the good in its transparent form either. However, there is a considerable chance that consumers would keep the opaquely purchased good even though they would not have purchased it in its transparent form partly because they might like it better. This effect was demonstrated in Study 3 where participants liked the opaque gifts they had received better and evaluated them more favorably than the equivalent transparent gifts. Consequently, companies that hand out something for free, such as birthday or thank you gifts, prizes from promotions, or loyalty rewards, might increase the attractiveness of these gifts by making them opaque. For instance, an online shop could inform customers that they will receive a freebie with the order without revealing what it will be, which would likely increase the consumer's pleasure about the gift at the moment of receipt. Surprise freebies may also help reduce shopping cart abandonment. By reminding customers that their shopping basket is still pending and mentioning that a small surprise gift has been added to the order, online shops can trigger consumers' curiosity and thus motivate them to finalize their purchase. Our findings also support the idea of handing out opaque samples when promoting new products, for instance, when introducing a new scent or flavor (see Appendix B.1). Many consumers will enjoy finding out what the opaque good is and might end up evaluating the product more favorably than if they had received it in transparent form.

Finally, our research also carries implications for consumers themselves. Although consumers might not be aware of or might underappreciate the positive effects of uncertainty (Wilson et al. 2005), we argue that opaque goods might alleviate the purchase process and increase consumers' post-purchase satisfaction. Opaque goods might not be useful when consumers know exactly what they want to buy; however, consumers might benefit from choosing them when experiencing preference uncertainty or choice overload, and thus they might end up more satisfied.

### *3.4.3 Limitations and future research directions*

Our findings are subject to certain limitations. First, we only studied low-risk contexts because the products employed in our studies (ice cream, cereal bars, Christmas gadgets) are all consumables of comparably low monetary value, with the product type revealed in advance. We purposely chose such products because we claim that the presented positive effects of uncertainty only hold for low-risk purchases. However, we did not explicitly test whether this is actually the case, leaving it unclear whether our results might

still apply for purchases with higher risk. Examples of expensive, high-involvement, highly opaque goods do exist in practice (e.g., the above-mentioned surprise holidays).

Furthermore, our experiments exclusively use opaque stimuli where the degree of opacity is held constant, and the concrete alternatives are unknown to the consumer. We chose this kind of design because we wanted to enforce positive effects of opacity, such as imagining what the product might be (Lee and Qiu 2009), and to prevent any disappointment if a consumer gets assigned a less-preferred alternative out of a known set.

However, there are also settings where consumers can control the degree of opacity (so-called variable opaque products (Post 2010; Post and Spann 2012)) or where the set of alternatives is known, with the specific item being assigned immediately after purchase or at a later point of time (the latter is referred to as flexible goods; see Gallego and Phillips 2004, p. 321). It could therefore be useful to conceptualize opaque selling as describing different “participative choice mechanisms”. This is conceptually equivalent to participative pricing mechanisms (e.g., Chandran and Morwitz 2005, Kim, Natter, and Spann 2009) where sellers transfer (part of) their pricing power to the buyer. Depending on how much choosing power a buyer transfers to the seller (e.g., offers in which buyers can exclude options or can name required specifics to “sell-what-you-want”, where choosing power lies completely with the seller), this would allow to particularize differences regarding risks and advantages for both sellers and buyers.

In addition, we were not able to account for all individual and contextual factors that might have affected participants’ decisions for or against opaque goods. Ideally, future research should investigate various other potential drivers and develop an overall framework.

First, it would be interesting to examine which consumer characteristics impact individual consumer’s likelihood of purchasing opaque goods. For instance, consumers differ in their willingness to give up choice control. Kovacheva, Nikolova, and Lamberton (2017) show that men are less likely than women to buy opaque goods due to their higher need for control, and Fan and Jiang (2018) demonstrate the same for socially excluded consumers whose sense of personal control is already thwarted. This research stream is just beginning to emerge. Other relevant dispositions could be general optimism and risk aversion (see Elmachtoub and Hamilton (2017) who model opaque selling with pessimistic versus risk-neutral consumers), novelty and variety seeking, and tendency to maximize, to name a few.

Second, consumers' emotions and emotion intensities probably play a role when deciding for or against opaque goods. For instance, consumers' propensity to buy exciting products and their evaluations of expectation-divergent innovations depend on their mood and level of arousal (Di Muro and Murray 2012; Noseworthy, Di Muro, and Murray 2014). These findings could probably be transferred to the choice and evaluations of opaque goods.

Third, differences in consumers' way of approaching a choice situation and their decision-making style are worth considering. As an example, recent research by Duke, Goldsmith, and Amir (2018) shows that consumers are more likely to accept uncertainty if they focus on the details rather than on the gist of the choice options.

Finally, it is also worth examining which situational factors drive the purchase of opaque goods. For instance, opaque goods could be an attractive option when consumers need to purchase for others under time pressure (e.g., buying a random flower bouquet as a last-minute gift), or when group decision-making is difficult (e.g., agreeing on a sneak preview when there is no consent about the movie).

## 4 The Influence of Probabilistic Decoy Goods on Assortment Choice

A probabilistic good is an offer involving a certain probability of getting any item from a set of multiple distinct alternatives. If the probabilities are unequally distributed, consumers may form a chance–quality heuristic: i.e., interpret a lower chance of allocation as a signal for quality. We propose that probabilistic goods can be used as decoys to increase the attractiveness of a target product, thereby positively affecting its transparent sales.

Data from one online study and two field studies support the proposed mechanism when the target product is a low-share item of the assortment, with high-share items remaining unaffected.

Our findings carry important implications for both researchers and practitioners: We develop a new area of application for probabilistic goods and outline when and how practitioners can use them to increase the desirability of specific items in an assortment.

### 4.1 Introduction

Probabilistic selling is the practice of selling probabilistic goods: consumers are offered to buy a product that may be any item from a set of several distinct alternatives (Fay and Xie 2008). We distinguish between pure probabilistic selling (i.e., selling only probabilistic goods) (Geng 2016) and mixed probabilistic selling (i.e., selling both probabilistic and regular goods, referred to as transparent goods). Although the former is less common than the latter, it has long been used in the area of collectibles. For instance, chocolate producer Ferrero regularly creates sets of collectible figures for its Kinder Surprise eggs and advertises that one can be found in every seventh egg. Consumers cannot buy the figures transparently (i.e., pick the figure they want to have); these can only be obtained by purchasing the eggs.

Because pure probabilistic selling restricts consumers' freedom to choose products, sellers can increase a product's desirability and perceived value by creating rarity, i.e., reduce a product's availability (Koford and Tschoegl 1998). So in the surprise eggs, while most of the figures are considered junk, the collectible ones that are only contained in every seventh egg can reach high trading value (Maciej 2017).

While this connection between the probability of obtaining a product and its desirability is well known (e.g. Apostolou 2011; Catry 2003; Lynn 1991), there is yet no research

on whether it also holds when actual rarity is absent and the freedom of product choice is not restricted.

For instance, imagine a café that wants to run a promotion for two exotic lemonades (A and B) that are new in the menu. The customers have to roll a die to receive one of the two lemonades for half the price: A if the die shows 1 to 5, B if the die shows 6. Would this then make B seem more desirable even though both lemonades are also available in the regular menu at the same full price?

This question is highly relevant not only for designing promotional lotteries but also for all companies who use or consider using mixed probabilistic selling.

The aim of the present research is to investigate if and under which conditions probabilistic goods may serve as *probabilistic decoy goods*, whose main purpose is to increase the choice share of a transparent target option.

We first review the literature on probabilistic selling to illustrate how our research adds a new application field to this selling strategy. We then outline why and under which conditions probabilistic decoy goods may evoke a *chance–quality heuristic*, i.e., increase the attractiveness and perceived expensiveness of an option by lowering its probability assignment in a probabilistic setting. In three studies, we analyze how transparent product choice varies depending on the design of probabilistic decoy goods. We find that choice for low-share brands increases whenever they are the target (i.e., when they have a lower chance within the probabilistic good).

Our findings carry important implications for both research and practice. We present a new area of application for probabilistic goods and outline when and how practitioners can use them to increase the desirability of specific items in an assortment.

## 4.2 Related theory and hypotheses

### 4.2.1 Using probabilistic goods as decoys

A probabilistic good is a good that involves the probability of getting any one of a set of multiple distinct items (Fay and Xie 2008, p. 674). By assigning items to consumers instead of letting them choose themselves, sellers profit from reduced demand uncertainty and a more efficient use of inventory and capacities (Fay and Xie 2015). To compensate consumers for giving up their authority to choose and for accepting the corresponding uncertainty, probabilistic goods are usually sold cheaper than transparent

goods (Rice, Fay, and Xie 2014). This allows sellers to price discriminate between customers with weak and those with strong preferences because the latter are likely willing to pay a price premium for choosing their favorite product (Fay and Xie 2008; Jiang 2007). Fay and Xie (2008) recommend assigning equal probabilities to all options because otherwise, the cheaper probabilistic good would likely cannibalize the transparent sales of the highly probable options. This reasoning is supported by Jerath, Netessine, and Veeraraghavan (2009). They demonstrate that the sale of a probabilistic good that contains products from two firms with asymmetric capacities reduces transparent sales for the large-capacity firm. Consumers assume a higher likelihood of receiving the product of the large-capacity firm than that of the small-capacity firm, and therefore they partly switch from transparent purchases of this product to buying the cheaper probabilistic good instead.

However, cannibalization is only a problem when probabilistic goods are sold cheaper than transparent goods (Fay 2008, p. 60). If sold at the same price, sellers can distribute probabilities as they wish because a financial disadvantage due to cannibalization is precluded. Intuitively, one might conclude that sellers could then assign higher probabilities to items that are less popular or high in supply (c. Fay and Xie 2008, p. 685), thus capitalizing on consumers whose preferences are weak enough that they do not care to choose or who value the “fun element” of probabilistic goods. However, doing so might intensify imbalances in inventory because consumers might use the probability distribution as a heuristic for quality and thus the demand for less popular items might decrease even further.

We therefore suggest assigning lower probabilities to less popular items to increase their respective sales. While this seems paradoxical at first sight, we argue thus: when probabilistic goods do not offer savings, the majority of consumers will perceive them as inferior to transparent goods and will therefore buy transparently. Thus, undiscounted probabilistic goods may function as decoys, in the sense that they are not themselves meant to be purchased but to increase the desirability of a target option (see Huber, Payne, and Puto, (2014) for a review on decoys). An increase in desirability may occur if consumers use unequal probability distributions as a heuristic for quality, with lower probabilities indicating higher quality (chance–quality heuristic).

#### 4.2.2 *The chance–quality heuristic: probability as a signal for quality*

Heuristics are conscious or unconscious cognitive processes that simplify choice by providing mental shortcuts (Gigerenzer and Gaissmaier 2011), thereby decreasing decision-making effort (Shah and Oppenheimer 2008). When evaluating alternatives, decision-making can be particularly difficult if not all criteria are easy to assess. A helpful heuristic would be to draw inferences from one easily accessible attribute or cue of an object about the value of another less well-defined attribute. A common example for the latter is product quality: consumers frequently use brand names, advertising frequency, or price as respective proxies (e.g., Dodds, Monroe, and Grewal 1991; Erdem, Keane, and Sun 2008; Gneezy, Gneezy, and Lauga 2014; Rao and Monroe 1989), particularly when they do not have much prior knowledge about the product (Rao and Monroe 1988). In mixed probabilistic selling, the chances of probabilistic allocation might constitute such a proxy. In lotteries, for instance, chances of winning the more valuable prizes are always lower than chances of winning consolation prizes. This rule is so deeply embedded in consumers' consciousness that lotteries offering consolation prizes in addition to main prizes are paradoxically less attractive because consolation prizes make the low probability of winning a big prize more salient (Yan and Muthukrishnan 2014).

An interesting question is whether the association of a desirable prize with a low winning probability also works the other way around: that is, whether a low probability of winning makes a prize seem more desirable and more expensive. Applied to the context of mixed probabilistic selling, this would mean that an item may be perceived as more expensive and more attractive when it is less probable (chance–quality heuristic).

This effect could also be justified with the scarcity heuristic: consumers assume that a scarce product is highly popular with other consumers and use this scarcity as a signal for quality. This makes scarce products seem more desirable, thus increasing their probability of being chosen (e.g., Lynn 1989, 1991; Parker and Lehmann 2011; van Herpen, Pieters, and Zeelenberg 2009). Consumers also assume that scarce products are more expensive (Lynn 1989; Lynn and Bogert 1996).

Nonetheless, it is important to note that probabilistic items under a mixed probabilistic selling strategy are not scarce; they are perfectly available in transparent form. But as consumers tend to use easily available cues even if they are not important (Hsee 1996), they may still use the chance–quality heuristic when making their choice, despite the

product being actually neither scarce nor more difficult to receive when choosing transparently.

#### *4.2.3 Effects of confirming vs. disconfirming information on choice*

The effectiveness of new information or informational cues are stronger when they contrast a current opinion than when they confirm it. While confirming cues have only little impact, contrasting cues can have a considerable effect (Einhorn and Hogarth 1985).

For instance, Burton et al. (2015) demonstrate the difference in the strength of the effect between confirming and contrasting information within the context of nutrition choices. They show that information that simply confirms prior beliefs about food health (i.e., health horns or health halos) has little effect on consumers' opinion; whereas information that disconfirms existing beliefs leads to significant changes in product evaluations and choice.

Regarding choice in particular, this interaction is further strengthened by the fact that low-share items have a greater pool of consumers to draw from (i.e., the pool of consumers who buy the high-share item) (c. Sethuraman and Srinivasan 2002, p. 382, p. 382); meaning, information in favor of less popular items has a much stronger impact on choice share than information in favor of more popular items.

In Parker and Lehmann's (2011) investigation of the interplay of quality information and the scarcity heuristic, participants who faced two wines of the same quality chose the scarce wine four times more often than the abundant wine. When they varied product quality, this choice pattern was slightly strengthened when the difference in quality confirmed the scarcity heuristic (i.e., when the scarce product was actually of higher quality than the abundant product). When the quality information disconfirmed the scarcity signal (i.e., when the scarce product was actually of lower quality than the abundant product), the preference distribution almost reversed, with choice share of the scarce product decreasing to 27% (Parker and Lehmann 2011, Study 3, p.149).

Of course, this difference in effect on choice share is not limited to two-item cases. For example, of three brands—A, B, and C—A is generally considered to be of higher quality than B or C. If A achieves better results than the other two in a product testing, this will most likely not affect choice shares because prior beliefs are confirmed and there is no new information that would change existing preferences. If, however, B receives an

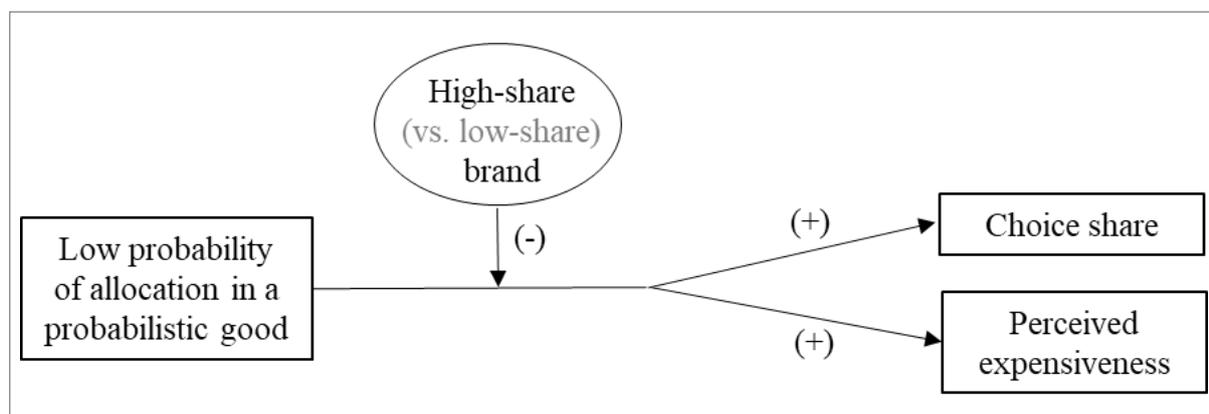
unexpectedly good test result, then some consumers, particularly those who were indifferent between B and C before, may update their belief about its quality and switch to B.

This reasoning also applies to the chance–quality heuristic: if an alternative is on average more popular (i.e., a high-share item), a lower likelihood of probabilistic allocation only confirms the existing preference pattern and should therefore not have much effect on choice share and perceived expensiveness. If, however, an alternative is on average less popular (i.e., a low-share item), a lower likelihood of probabilistic allocation may constitute new information in favor of this alternative, leading some consumers to instead choose this targeted low-share item.

In line with this theory (see our conceptual model in Figure 4), we developed the following hypotheses:

Hypothesis 1 (**H<sub>1</sub>**): Lowering the allocation likelihood of a low-share item in a probabilistic good increases its transparent share.

Hypothesis 2 (**H<sub>2</sub>**): Lowering the allocation likelihood of a low-share item in a probabilistic good leads to a more expensive perception of the item.



**Figure 4: Conceptual model**

## 4.3 Empirical studies

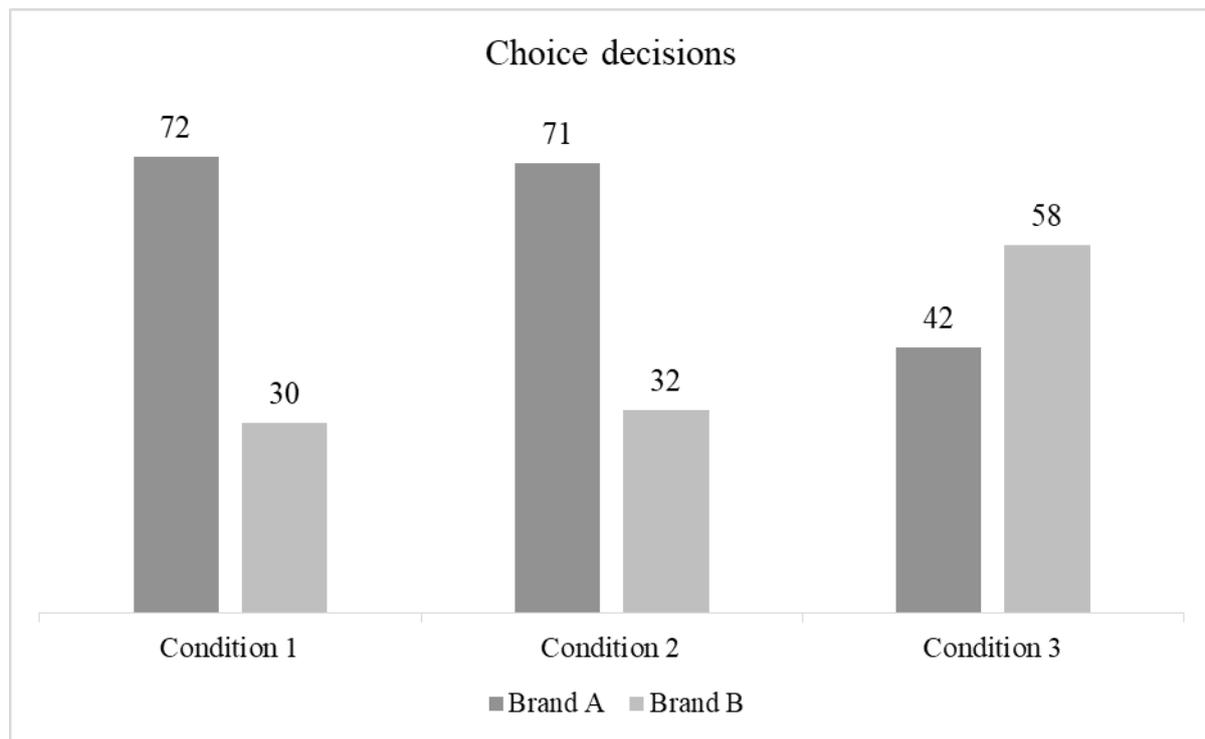
### 4.3.1 Study 1: Game of dice experiment I (2 items)

*Method.* Study 1 was an online scenario experiment for which we recruited respondents, via a click-working platform, to participate in a 3-minute online survey. We instructed participants to imagine that they were spending an evening at a nice bar that offered a

promotional game during happy hour: customers could play dice to get one of two brands of gin tonic for only €5. However, participants were told that happy hour was already over when they arrived, so they could no longer play the promotional game but could still buy the two gin tonic brands transparently at today's special price of €7 each. Participants then had to choose which of the two gin tonics they wanted to buy. After making their decision, participants were asked to rate on a 7-point Likert scale how difficult they had found this decision (1: not difficult at all, 7: very difficult) and to estimate the regular prices of the two gin tonic brands at the bar, reminding them that today's special price had been €7. Further, we collected data on brand knowledge, how much participants liked gin tonic in general, and demographic information.

Respondents were randomly assigned to one of three conditions that differed in the probability distribution of the happy hour game. In condition 1 (control condition), chances were distributed 50:50. Thus, customers received brand A (B) when the die showed 1, 2, or 3 (4, 5, or 6), or vice versa, to control for any possible effects of number allocation. In condition 2 (3), customers received brand A (B) when the die showed 6; otherwise, they received brand B (A).

*Results and discussion.* Of the 388 respondents, 305 completed our survey (181 male, average age = 36). Because there were no differences between the two variants of number allocation in the control condition, we pooled the data. Chances in the control condition were distributed 50:50 but participants chose brand A more than twice as often than they did brand B; thus brand A was perceived as the superior option. This choice distribution remained equal in condition 2, where brand A, the high-share brand, was the target. However, in condition 3, where the target was brand B, the low-share brand, choice shares shifted significantly, with B becoming the more popular choice ( $\chi^2(1, n = 202) = 16.79, p < .001$ ) (compare Figure 5). These results remained robust when controlling for gin tonic affinity and familiarity with one or both of the brands. Age and gender did not have any impact either. Therefore,  $H_1$  is supported.



**Figure 5: Study 1: Choice decisions by condition**

Because heuristics alleviate decision-making, we also compared choice difficulty. There was no difference in perceived choice difficulty for those who chose brand A in the target (=C2) vs. control condition (=C1). In contrast, participants found the decision to choose brand B significantly easier when it was the target (=C3;  $M = 3.0$ ,  $SD = 1.33$ ) than when probabilities were equally distributed (=C1;  $M = 3.97$ ,  $SD = 1.59$ ,  $p < .01$ ). This suggests that participants may have used the chance–quality heuristic.

We then analyzed estimated prices, excluding estimates equal or smaller than €7 (it was made clear that €7 was a promotional price below the regular price) and outliers (i.e., estimates above 1.5 interquartile ranges above the 75<sup>th</sup> percentile). There was no significant difference in price estimates for brand A when its probability was low (=C2) vs. when it was equal to B's (C1;  $p = .191$ ). However, price estimates for brand B were significantly higher in the target than in the control condition ( $M_{C3} = €10.26$ ,  $SD = 1.54$ ,  $n = 83$  vs.  $M_{C1} = €9.69$ ,  $SD = 1.56$ ,  $n = 82$ ,  $p < .05$ ). Consequently,  $H_2$  is supported.

Altogether, these differences indicate that the chance–quality heuristic was effective when targeting brand B, the low-share brand, but not when targeting brand A, the high-share brand.

#### 4.3.2 Study 2: Game of dice experiment II (3 items)

The aim of Study 2 was to verify the results of Study 1 with an experiment where choice had actual consequences. We also used a larger assortment size (three instead of two options) and reduced the difference in probabilities (target was half as likely as competing options).

*Method.* We offered students a free bottle of lemon soda as compensation for participating in a short paper-and-pencil survey. We used three different unknown niche brands that were all organic and came in the same size. The survey was mostly unrelated, but we asked participants to rate the attractiveness and estimate the regular retail price of each lemon soda, and told them that all three brands cost between €0.70 and €2.50.

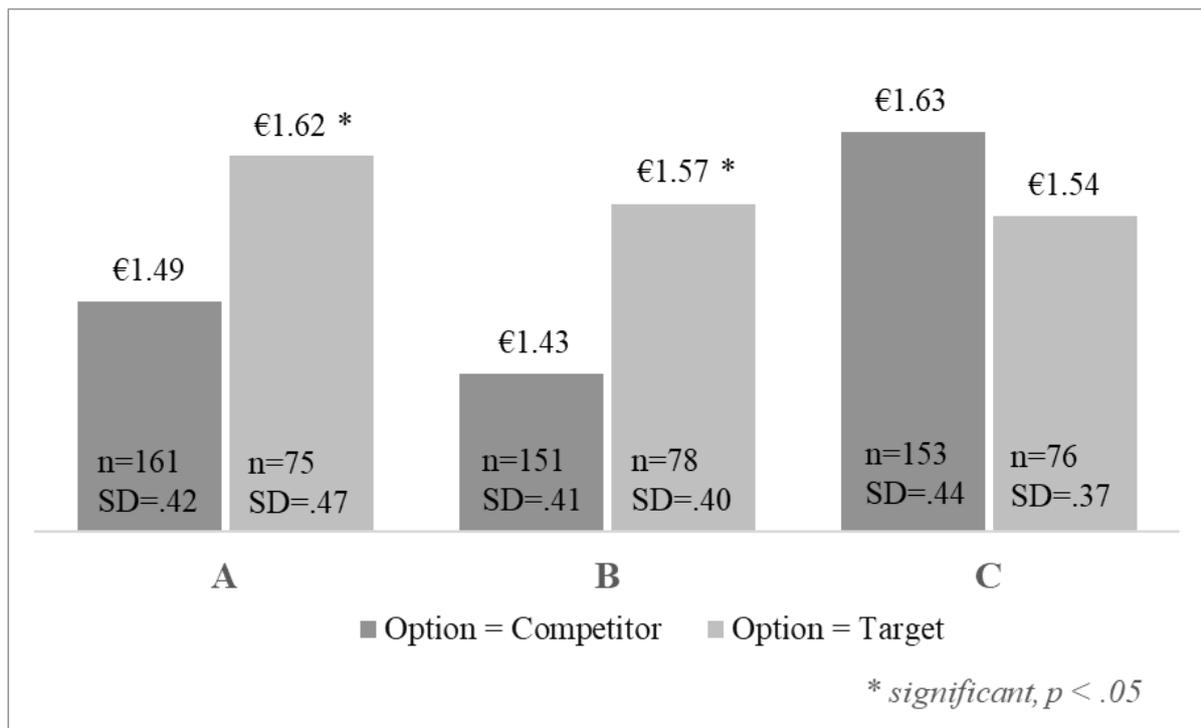
Participants could then either choose the lemon soda they wanted or let one of the research assistants roll the die. For the latter variant, we varied three different conditions. In condition 1, students received lemon soda A if the die showed 6, and lemon soda B (C) if the die showed 2 or 3 (4 or 5). When the die showed 1, the research assistant simply rolled it again. This made lemon soda A the target because it was only half as likely as the other two lemon sodas. In conditions 2 and 3, probabilities were exchanged: B and C were assigned to a die roll of 6 and therefore became the target (see Appendix C.1 for a picture of the stand and the instruction sheet). The experiment was conducted in front of the student cafeteria, and we made sure to switch scenarios discretely during the small breaks. We also hid remaining supplies to prevent scarcity effects.

*Results and discussion.* Two hundred forty-three students (198 male, average age = 22) participated in our survey. We excluded eleven participants who had indicated to not have understood the game of dice, or to dislike lemon sodas (value of 1 or 2 on a 7-point Likert scale). Of the remaining 232 participants, 167 participants decided to choose a soda, while the other 65 let the die decide. Our findings show that C was rated more attractive than A and B ( $p < .001$ ). This rating also reflected on choice shares: of the 169 participants who chose a soda, 45 chose A, 39 chose B, and 83 chose C.

To test  $H_2$ , we compared average estimated prices for each lemon soda and differentiated whether it was target or not. We analyzed estimates from 229 participants (one participant gave estimates above €2.50, and two did not give any estimates).

As illustrated in Figure 6, estimated prices increased significantly for both A (A as competitor: €1.49 vs. A as target: €1.62;  $p < .05$ ) and B (B as competitor: €1.43 vs. B as target: €1.57;  $p < .05$ ) when they were the targets. However, estimated prices for C decreased under the target condition, although the difference was not significant ( $p = .09$ ).

Thus, the probabilistic decoy had only affected estimated prices of the low-share brands, which were perceived as more expensive when they were the target. Again, this result supported  $H_2$ .



**Figure 6: Estimated prices for lemon sodas A, B, and C by condition (option as competitor vs. option as target)**

We then compared choice according to target conditions. The data again supported  $H_1$ : there was no significant effect on choice when C, the high-share brand, was the target. However, the share of low-share brand A increased from 22% (when it was the competitor) to 36% when it was the target, which represents a significant increase ( $\chi^2(1, n = 167) = 3.87, p < .05$ ). Likewise, the share of low-share brand B increased from 20% (when it was the competitor) to 30% when it was the target; but this finding is not significant. However, when comparing condition 1 (low-share brand A is targeted) with condition 2 (low-share brand B is targeted), the share of B was significantly higher when it was the target ( $\chi^2(1, n = 119) = 4.30, p < .05$ ).

### 4.3.3 Study 3: Prize wheel experiment

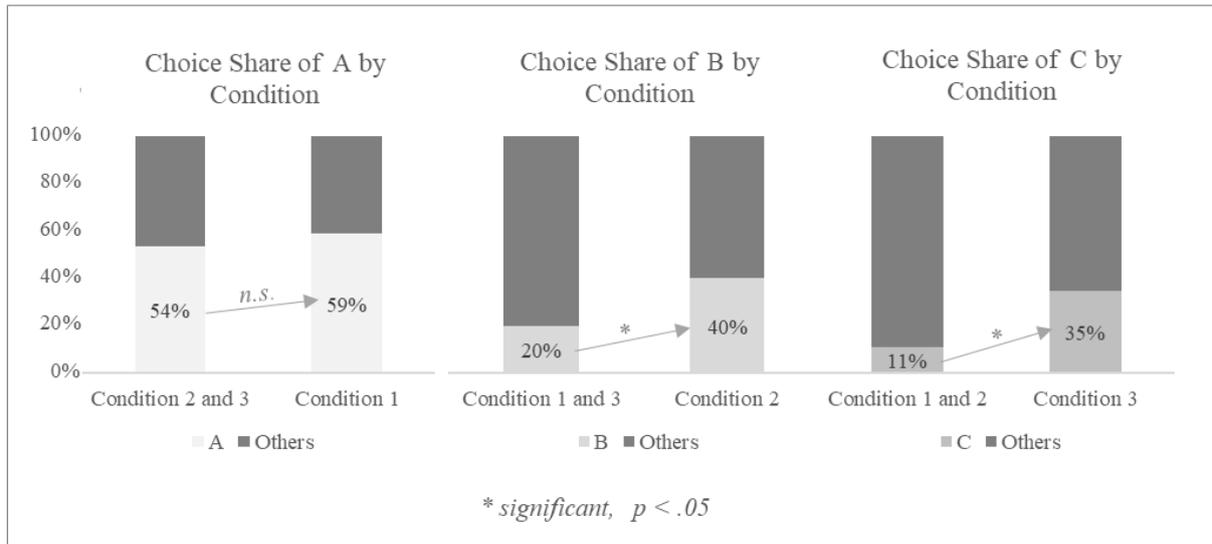
In Studies 1 and 2, participants had no information about the regular prices of the products. As price is often used as an indicator for quality, we conducted a third study to test whether the chance–quality heuristic still holds when price information is given (as in most regular purchase situations). Our study is a field experiment where all options cost the same and participants had to make actual purchases. We also used another probabilistic medium (a prize wheel instead of dice).

*Method.* We sold three different unknown niche brands of ice tea for €1 each in a pop-up stand at a local university campus.

Students who wanted to buy ice tea could either choose their favorite option transparently or let one of the sellers spin the prize wheel. The prize wheel had three sections corresponding to each ice tea (A, B, and C), whose probabilities in condition 1 were 16.67%, 41.67%, and 41.67%, respectively. In conditions 2 and 3, we switched items: B (C) was assigned to the small (i.e., 16.67% probability) compartment. After customers made their choice, we asked them—in the guise of collecting market research data for the three brands—to justify it, thereby controlling for possible noise. We again made sure that our remaining supply was not visible to the customers and always had three bottles of each brand on the selling table (see Appendix C.2 for a picture of the pop-up stand during condition 1).

*Results and discussion.* One hundred seventy-one students (134 male) bought ice tea; 119 of them decided to choose transparently instead of using the prize wheel. We excluded 29 participants whose choices were biased (e.g., group choices), thus leaving us with 90 purchases in the analysis.

Ice tea A (chosen 50 times) was clearly more popular than ice tea B (chosen 24 times) or C (chosen 16 times). As Figure 7 shows, popularity again moderated the effect of the probabilistic decoy. In all conditions, a little more than half of the participants picked ice tea A; meaning, the probabilistic decoy did not affect choice for A. However, B was chosen twice and C three times as often when they were the target as opposed to when they were the competitor; this represents significant increases in choice share (B:  $\chi^2(1, n = 90) = 4.09, p < .05$ ; C: Fisher exact test,  $p < .05$ ).



**Figure 7: Choice shares by option and condition**

The results of this experiment again support  $H_1$ : the chance–quality heuristic affects choice share of low-share items even when all items cost the same.

#### 4.4 General discussion

This research adds to the growing literature on probabilistic selling. Our findings open up a new area of application for probabilistic goods: sellers can use probabilistic goods as decoys to influence choice and perceived expensiveness of transparent goods. In three experiments, we found evidence of a chance–quality heuristic, which shows that low-share items are perceived as more expensive and chosen more often when their probabilistic likelihood is lower than those of other options.

The chance–quality heuristic is a new heuristic that suggests that rarity effects can be evoked without actually making products rare and restricting consumers' freedom of choice. Because choice share of low-share items increased even when price information was given (Study 3), we argue that the effect on choice share is not mediated by perceived expensiveness (c. Lynn 1989 for the mediating effect of perceived expensiveness on scarcity) but is directly affected by probabilistic likelihood (c. Fig 1). However, if future research could more comprehensively investigate precisely which inferences consumers draw when facing a probabilistic good with unequal probability distributions, then evidence of profound process for the demonstrated effect could be collected. As we used the same product category in all three experiments, future research could also validate our findings in other settings, for instance by varying the number of items or their degree of heterogeneity.

Our findings have useful implications for practice: they suggest that retailers can employ probabilistic decoy goods to subtly increase sales of low-share items. This can be particularly helpful whenever price reductions should be avoided, for instance when introducing new products at a given target price or offering assortments of horizontally differentiated items at a uniform price (e.g., flavors at an ice cream parlor).

Finally, it is also noteworthy that in the field studies, a considerable number of the participants opted for the probabilistic good even though there was no financial advantage (in the online study, the probabilistic decoy was a phantom decoy and thus could not be chosen). This questions the prevalent assumption that the uncertainty inherent to probabilistic goods needs to be compensated with a price reduction, and thus raises the need to more thoroughly explore other consumer motives for buying probabilistic goods.

## **5 Framing Price Increase Communication: The Use of Loyalty Incentives**

In contractual customer relationships, firms are forced by law to actively communicate each price increase to their customers, thus facing the risk of high churn rates. To provide insights on how marketers should best communicate a price increase, the authors investigate two levers for framing price increase communication: (1) providing reasons for the price increase and (2) providing different types of loyalty incentives in price increase notification letters. However, the use of these levers could also backfire, as customers could realize that marketing techniques are in place.

In an experiment in which participants face economic consequences as well as risk and effort when switching to a competitor, the authors find no effects for the provision of reasons, whereas incentives in form of cash-back or free units decrease churn even though their use is monetarily equivalent to a lower price increase without incentives. In a second experiment, the authors further vary the type of incentive, offering upgrades and premiums. Here, the provision of incentives lowered perceived fairness and increased customers' skepticism, which resulted in higher churn rates. Implications for marketing managers are provided.

### **5.1 Introduction**

When firms increase prices, significant higher levels of switching and reduced levels of cross-purchasing among current customers occur. Consequently, price increases represent a potential threat to the establishment and maintenance of a long-term profitable customer base and therefore have negative impacts on firm performance (Dawes 2009; Pick and Zielke 2015; Yang 2014). However, price increases are sometimes inevitable, particularly in markets where the price level is strongly impacted by regulated variations of taxes, charges, and other input costs. Changes in these cost types can force a firm to pass on the cost increase to its customers, resulting in a price increase.

This situation is even more severe for industries with services on a contractual basis such as utilities or communication. In these industries, service providers are required to explicitly announce a price increase in advance by sending notification letters to their customers. Due to the price increase, customers are allowed to end contracts regardless of the contractual period, which can thus result in high churn rates.

A European study found that price increases motivate 62% of customers to think about switching to a lower priced service provider (Kreuzer Consulting 2013). A large German consumer study found that more than every fourth change of electricity provider happens due to a price increase of the old provider (Statista 2016). In 2015, a European mobile provider lost 13,000 of its contract customers in the last quarter after increasing prices (Urech 2015).

If firms are legally obliged to actively communicate a price increase to their customers, they need to do it in a way that minimizes these high churn rates and enables them to keep their valuable customer base. Therefore, providing marketers with guidelines on how to best communicate a price increase is of high practical relevance.

Despite the high practical relevance, previous research on price increases is scarce (Bijmolt, van Heerde, and Pieters 2018; Homburg, Koschate, and Totzek 2010; Sivakumar and Raj 1997). Research showing that the communication of the price increase may help to mitigate its negative effects is even rarer (Heath, Chatterjee, and France 1995; Homburg, Koschate, and Totzek 2010).

To address this gap, this research article focusses on price increase communication strategies that can be applied by marketing managers to mitigate churn rates. Insights of a qualitative evaluation of 97 price increase notification letters of a European service provider show that marketing managers use mainly two levers for reducing the negative consequences of a price increase (Pick and Zielke 2015). The two levers refer to the marketing managers' decision of (1) providing reasons for the price increase and/or (2) providing loyalty incentives in price increase notification letters.

Regarding the first lever, it needs to be stressed that a majority of price increases in services are driven by external causes such as tax increases. However, internal causes, such as higher labor costs or mismanagement, could sometimes also force the service provider to increase prices. Previous research insights on customers' fairness perceptions of a price increase indicates that price increases due to internal reasons are perceived as less fair than price increases that can be attributed to external reasons (Campbell 1999b; Vaidyanathan and Aggarwal 2003). Thus, in case of a price increase due to internal reasons, a key question for marketing managers could be whether it is advisable to provide no reason at all. However, this could make customers conclude that the firm raises prices to increase its own profits.

With respect to the second lever, the results of marketplace observations further show that the provision of incentives in price increase notification letters has become a common marketing tactic to stimulate contract extension. For instance, a large European telecommunications provider with an annual turnover of €12 billion announced a price increase for an internet contract together with a speed upgrade (Swisscom 2018). Similarly, a major European eco energy provider offered its customers a free-energy usage incentive or a cash incentive when accepting a price increase (Entega 2014).

The common practice of offering costly incentives together with a price increase seems paradox at first sight, especially in case of price increases due to cost increases. But if incentives are able to reduce churn, their overall profit implications might be positive, as they might increase customer lifetime value (see Appendix D.1 for a numerical example that substantiates this notion).

However, applying the two levers for framing price increase communication could also backfire. Customers may perceive the provision of reasons or the use of incentives as marketing tactics to manipulate their behavior. The process of engaging in such thinking styles and evaluating marketing tactics is generally referred to as “customers’ marketplace metacognition” (Wright 2002). If a customer perceives that the marketer is acting in his/her own interest rather than in the interest of the customer, this could lead to higher churn rates.

To date, an empirical analysis of the effects of these two levers (i.e., provision of reasons and/or incentives) on marketplace metacognition and eventual churn rates is lacking, a gap this paper aims to close. Furthermore, there is no research on whether the type of incentive may play a role. Sellers may offer cash or different kinds of non-monetary incentives that may be related or unrelated to the product (e.g., premiums). They may even let their customers choose between different incentives. As customers’ reactions to these different types of incentives may vary, it is essential to investigate which types of incentives are perceived as (most) favorable in the context of price increases.

In the area of purchase promotions, premiums were found to be less effective in stimulating purchases than discounts of equal value (Foubert et al. 2018). However, this finding does not necessarily apply to price increases, where monetary incentives might make customers more suspicious than in-kind incentives or premiums. In two studies, we therefore explore how providing different types of incentives affects marketplace metacognition and churn rates.

In Study 1, we designed a household budget game that allows testing the impact of the two levers (providing reasons or incentives) in a setting where participants' decisions imply economic consequences as well as risk and effort for switching.

In Study 2, an online scenario experiment, we test the effect of different kinds of incentives, differentiating incentive type and customer control.

The remainder of this article is structured as follows: based on previous research insights, we derive research questions capturing the implications of framing of price increases on perceptual (i.e., marketplace metacognition) and behavioral (i.e., churn) responses. This is followed by a description of our two studies and a discussion of the results. The paper closes with a critical appraisal of our findings and an outline of its managerial implications.

## **5.2 Framing of price increase communication**

### *5.2.1 Prior research on price increases*

Most of the literature on price changes studies how customers respond to price decreases, e.g., price discounts (Hoch, Drèze, and Purk 2018; Kalwani and Yim 1992). When it comes to buyers' responses to price increases, the literature has emphasized a general lack of knowledge (Bijmolt, van Heerde, and Pieters 2018; Campbell 1999a; Homburg, Hoyer, and Koschate 2005; Sivakumar and Raj 1997). The existing literature on price increases can be classified into three research streams. In the first research stream, several studies do exist that analyze fairness perceptions of price increases, and focus on the antecedents (i.e., inferred motive, inferred profit, timing of price increase, locus of cause and controllability of price increase) that shape price fairness perceptions (Campbell 1999a, 1999b; Vaidyanathan and Aggarwal 2003; Xia, Monroe, and Cox 2018). The second stream of research links the price increase directly to customers' behavioral reactions and shows how these reactions are moderated by customer specifics, such as tenure, relationship breadth, satisfaction, and income (Dawes 2009; Homburg, Hoyer, and Koschate 2005). The third stream of research focusses on how to frame the price increase information (i.e., one large price increase vs. two small price increases, bundle price increase with price decrease, and percentage increase vs. absolute terms)

to affect both customers' perceptual and behavioral responses most favorable (Chatterjee et al. 2000; Heath, Chatterjee, and France 1995; Homburg, Koschate, and Totzek 2010).

In this paper, we add to the third stream by being the first to investigate how the provision of different types of loyalty incentives affects customers' marketplace metacognition and ultimate churn rates, thereby providing marketing managers with guidelines on the use of incentives in the communication of price increases.

### *5.2.2 Prior research on marketplace metacognition*

According to the Persuasion Knowledge Model (PKM), the customer is viewed as an active participant in a dyadic relationship with a persuasion agent, in which both parties aim to accomplish their own goals (Friestad and Wright 1994). Therefore, the PKM often defines marketplace interactions as a game between customers and marketers, in which the customers refer to their persuasion knowledge when coping with a marketer's persuasion effort. Customers' persuasion knowledge is obtained by drawing inferences about the marketer's motive, by engaging in marketplace metacognition to evaluate marketing tactics, and by coping with persuasion cognitively, emotionally, and behaviorally.

If a customer becomes concerned about whether the marketer is acting in his/her own self-interest rather than in the interest of the customer, marketplace metacognition (i.e., customers' social intelligence through which marketing tactics are interpreted (Wright 2002) may arise (Brown and Krishna 2004; Friestad and Wright 1994). For instance, Brown and Krishna (2004) provide empirical evidence that marketplace metacognition is present in the context of default options, which in turn could have negative effects on firms' selling strategy. More specifically, the authors show that when a customer perceived the default option to be a selling technique, s/he either opted out of the option or even stepped back from the purchase.

### **5.3 Levers for framing price increase communication and effects on marketplace metacognition and churn rate**

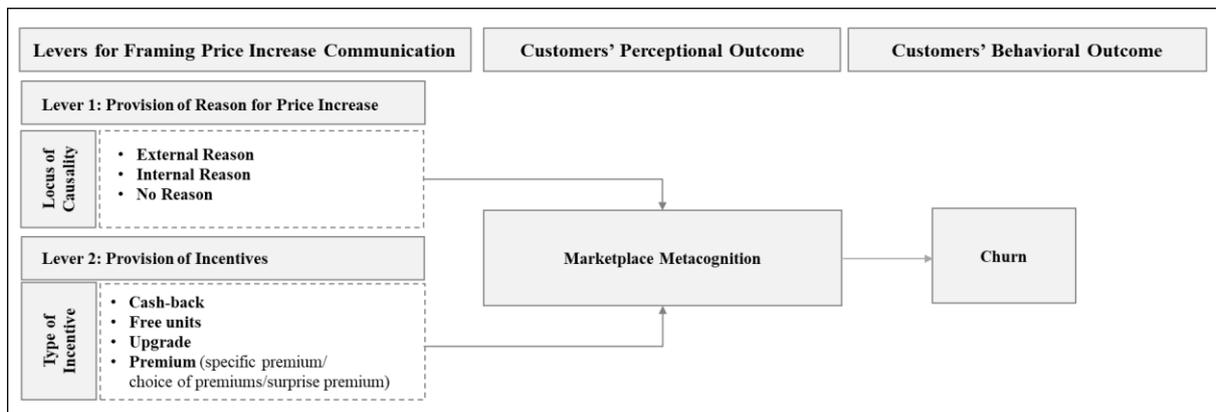
Given the potential threat that customers engage in marketplace metacognition when evaluating a price increase notification letter, the key question for marketing managers is how to frame the price increase communication to affect both customers' perceptual and behavioral outcome most favorable. To shed light on this question, this paper studies

two levers for framing price increase communication: (1) provision of a reason for the price increase and (2) provision of loyalty incentives.

The first lever refers to the locus that can be attributed to the price increase. Based on attribution theory, locus of causality can be classified into two types: (1) external reason and (2) internal reason (Campbell 1999a, 1999b; Vaidyanathan and Aggarwal 2003). In addition to these two types of reason, we analyze whether it could be more beneficial to refrain from providing any reason for the price increase.

The second lever refers to incentives provided in the price increase notification. In particular, we investigate whether the provision of incentives mitigates churn rates, and if so, which type of incentive and way of offering incentives is most successful. We therefore vary loyalty incentives with regard to their type (i.e., monetary/monetary-equivalent/combined (Study 1); product-related or -unrelated (Study 2)), and consumers’ control about the incentive (transparent vs. surprise incentive; fixed incentive vs. choice between different incentives (Study 2)).

As depicted in Figure 8, the variations of both levers of price increase communication are linked to customers’ perceptual outcome (i.e., marketplace metacognition) as well as behavioral outcome (i.e. churn).



**Figure 8: Overview of framing of price increase communication**

In the following, we review previous insights on each lever for price increase communication and the concept of marketplace metacognition in detail and then derive our research questions that capture the relationship of reason for price increase, incentive framing, customers’ marketplace metacognition, and customers’ churn.

### *5.3.1 Lever 1: Impact of reason of price increase on marketplace metacognition and churn*

According to the fundamentals of attribution theory, research has shown that customers' fairness perceptions of a price increase are higher when the cause of the price increase can be attributed to external forces (Folkes 1984; Vaidyanathan and Aggarwal 2003). In contrast, customers react more negatively towards a price increase when the locus of causality is internal to the firm. Even cost-justified price increases are perceived as less fair when the locus of causality is internal to the seller.

Since this paper focusses on the derivation of communication strategies to affect customers' marketplace metacognition most favorable, a key question for marketers could be whether it is more beneficial to provide no reason for the price increase at all, especially in case of internally caused price increases. However, customers could then come up with the conclusion that the marketer wants to hide something, such as an attempt to increase profits.

To sum it up: Marketing managers can deduce that external reasons for price increases cause less negative customer reactions than internal reasons, but this has so far not been compared with customers' response when an explanation is missing. Furthermore, customers could also question the credibility of a firm's explanation, meaning they could ask themselves whether the stated reason for the price increase is actually true, or rather a marketing tactic. Therefore, it is unclear how this lever affects marketplace metacognition most favorably. Hence, the following research question is scope of the analysis:

**R<sub>1</sub>:** Does the provision of different types of reasons (i.e., internal or external) for a price increase affect marketplace metacognition and churn and if so, should such reasons be provided or not?

### *5.3.2 Lever 2: Impact of incentives on marketplace metacognition and churn*

With respect to incentives in price increase communication, research on mental accounting principles provides rather clear predictions on the implications on churn rate. Heath, Chatterjee, and France (1995) show that customers prefer a bundle of a price increase of one product with a price decrease of another product to only one loss, even when both

options are of the same total value. Based on these insights, marketing managers could deduce that bundling a price increase (i.e., loss) with a loyalty incentive (i.e., gain) could be used as a lever to lower churn rate. However, when bundling a price increase with an incentive, customers are obviously confronted with a persuasive attempt, i.e., to push them towards contract extension. If a customer attributes the marketer's effort of providing incentives purely to a desire to persuade, marketplace metacognition may lead to increased churn rates.

Consequently, based on mental accounting theory, customers may evaluate the bundle of a price increase and a loyalty gain as more preferable compared to a lower price increase only. In contrast, findings on marketplace metacognition suggest that customers who become aware of the seller's intentions may step back from a contract extension (Morales 2005). Due to these opposing arguments, it is unclear whether the theory of mental accounting or the effect of marketplace metacognition dominates the total effect on churn, which may also depend on the specific type of incentive.

Previous research shows opposing results regarding customers' preferences for incentive types (Keh and Lee 2006; Kim, Shi, and Srinivasan 2001). According to classical economic theory, monetary incentives should be superior to nonmonetary incentives of equal value. Furthermore, the value of a monetary incentive is equal and perfectly clear to all customers, which is not necessarily the case with nonmonetary incentives (Nunes and Park 2018). This could explain why monetary incentives are better suited than non-monetary ones to help persuade customers to make a purchase (Foubert et al. 2018) or to engage in an activity, e.g., to answer surveys or write customer reviews (Jobber, Saunders, and Mitchell 2004; Kanuk and Berenson 1975).

However, we believe that when incentives are bundled with price increase information, the direction of impact on customers' perceptual response cannot be deduced from prior insights. For instance, bundling price increase information with a cash incentive could raise more suspicions (i.e., lead to higher marketplace metacognition) than a combination of a price increase with a non-monetary incentive, such as a firm's own products.

In Study 1, we therefore compare the effect of a monetary incentive with that of the equivalent non-monetary incentive (=free units of the focal product) as well as a combination of the two.

Regarding the types of non-monetary incentives, research further differentiates between incentives that are directly related to the product, and indirect incentives that have no content-related overlap with the product (Dowling and Uncles 1997; Keh and Lee 2006; Roehm, Pullins, and Roehm 2018; Rothschild and Gaidis 2018; Yi and Jeon 2003). Findings suggest that, independent of involvement levels, the timing of the reward, or customer satisfaction, customers prefer direct rewards over indirect ones. However, while experiencing the same costs, firms might be able to offer unrelated premiums (i.e., indirect rewards) of higher end-customer value than direct rewards: due to cost advantages, a seller could offer his customers premiums whose retail values are higher than the value of a monetary incentive (Foubert et al. 2018) or the value of an in-kind incentive. As an example, if a mobile phone contract costs €20 per month, and the provider offers one month for free as an incentive, the customer saves €20, and the company loses €20, that is, the equivalent amount of money. As an alternative, the company might be able to offer the customer an in-kind gift worth more than €20 at costs below €20 due to favorable dealer conditions. Furthermore, free gifts in purchase promotions were shown to be particularly effective in increasing perceived deal value (Darke and Chung 2005), meaning they could also be effective in decreasing the perceived costs of a price increase.

However, not every premium gift is attractive to every customer. To mitigate this problem, sellers could offer a choice of different premiums, which could also reestablish customers' sense of control that might have been diminished by the unexpected announcement of a price increase. However, offering a choice of incentives also increases complexity and handling costs.

Another alternative might be to offer a surprise incentive, that is, telling the customer that s/he will receive a gift worth more than €20 without disclosing what the gift is. This uncertainty could have further beneficial effects such as the stimulation of curiosity and other pleasurable feelings (e.g. Hill, Fombelle, and Sirianni 2016; Ruan, Hsee, and Lu 2018). However, surprise goods also carry the risk of disappointment, and might further diminish consumers' sense of control (compare Kovacheva, Nikolova, and Lamberton 2017).

More generally, premiums might also cause suspicions and reactance, because customers might think that they have to indirectly pay for a premium they do not necessarily need or want (compare Simonson, Carmon, and O'Curry 1994).

Consequently, sellers who consider combining a price increase with an incentive might face complex customer reactions. Given the numerous possibilities of providing incentives that all come with different pros and cons, it is essential to investigate which kinds of incentives are recommendable when communicating a price increase.

Thus, we aim to investigate the following research question empirically:

**R<sub>2</sub>:** Does the provision of different types of incentives (i.e., monetary/non-monetary/combined; product-related vs. –unrelated;) in price increase notification letters affect marketplace metacognition and churn and if so, should such incentives be offered, and how (fixed transparent incentive /choice of incentives/surprise incentive)?

## 5.4 Empirical studies

### 5.4.1 Study 1: Price increase of an electricity provider

*Experimental design.* The decision whether to accept a price increase is largely determined by customers' individual trade-off between paying a higher price for the same service and the risk and effort associated with switching to another service provider. To derive clear managerial implications, we aimed to make sure that the experimental design captures this trade-off. In particular, accepting the price increase needs to result in economic consequences (i.e., paying a higher price), whereas switching to another service provider needs to imply risk as well as effort. To study the relationship of framing price increase communication on customers' behavioral outcome (i.e., churn) with such a consequential dependent variable, we designed a household budget game that captures the decision trade-off between extending the contract at a higher price or facing the effort and risk of choosing another provider.

*Procedure of the household budget game.* The household budget game is implemented as an online game on participants' mobile phone, tablet or PC. Before playing the household budget game, participants are provided with detailed information on the goal and rules of the game. For that purpose, each participant of the household game receives a starting household budget of fictitious €3,500. The goal of each participant is to maximize this household budget until the end of the game. In order to fully ensure that the participants' decisions imply economic consequences, each participant receives the remaining household budget (i.e., times a certain factor to change gaming € into real €) as

reward at the end of the experiment. The participants are informed that they need to play the household game for a period of eight days, and that these eight days present two years in real life. Thus, participants experience a quarter of a year on each day of the experiment. Each day participants are challenged with actions that frequently occur in real life. These actions can be classified into four criteria:

(1) *Signing up contracts*: Participants need to sign up various contracts to meet needs of daily life (e.g., electricity contract, mobile phone contract, cycle theft insurance etc.). For each contract, participants can choose from a set of alternatives. For some contract types, the set of alternatives also includes a no-choice option. When signing-up a contract, participants need to fill in personal data into a formula. It is important to note that participants do not need to sign in their own personal data. Instead, they simply fill in the personal data of their token, which they had chosen at the beginning of the game. Thus, we create a realistic amount of effort and at the same time ensure the anonymity of the participants.

(2) *Reacting to notifications*: During the game, participants receive notifications. These notifications can be classified into two types: (1) notification letters from service providers and (2) general notifications. By means of the notification letters, we implement and vary differently framed price increase notification letters from one service provider. Besides, the notification letters can inform participants about service upgrade possibilities or insurance refunds. In contrast, the general notifications inform the participants about special occurrences in the game, for instance a stolen bike, the necessity of a dental visit etc.

(3) *Earning household budget*: To integrate some source of income, participants get the chance to earn additional household budget. For instance, participants can solve small problem sets, such as a memory game, or buy lottery scratch tickets. In case of success, the household budget increases. Moreover, participants are asked to answer a customer survey on the price increase notification letter. In return for completing the customer survey, the participants get rewarded with additional household budget. The possibility to earn additional household budget during the game also helps to increase participants' motivation for playing the household budget game for a period of eight days.

(4) *Paying invoices*: As in real life, participants receive the invoices for each signed contract at the end of each yearly quarter (i.e. at the end of each day played). More-

over, participants receive invoices that capture the implications of the general notifications. For instance, in case of a dental visit, participants need to pay the price for the service. For all invoices, participants are asked to read the total invoice and then to click on a button allowing them to pay the invoice. Due to the fact that participants have to approve every single invoice before payments are done, we increase participants’ awareness of the fact that their decisions in the game imply economic consequences. As the total household budget is adjusted by the amount of each invoice, we also create a realistic level of “pain” for making payments in return for receiving services or products.

Figure 9 depicts a summary of main actions per day (for a detailed summary of actions per day in chronological order please refer to Appendix D.2). At the end of each experimental day, the participants receive an overview of their expenses and earnings, as well as their remaining budget.

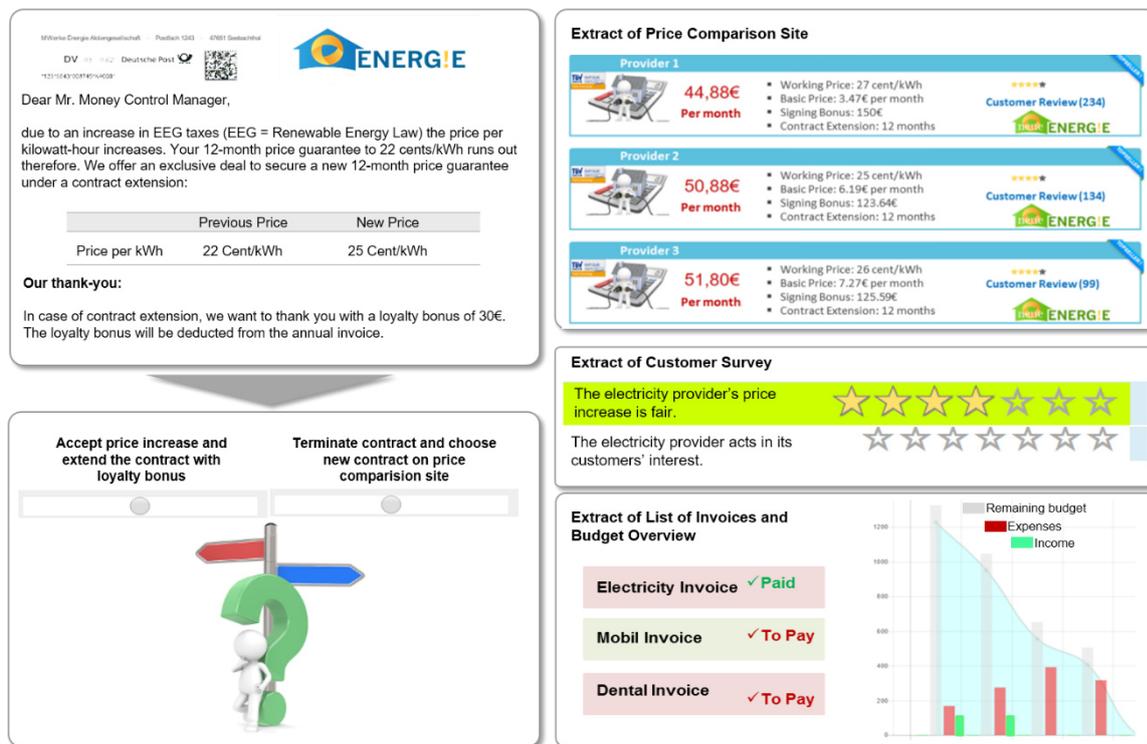
Summary of Actions in the Household Budget Game								
Actions	First year				Second year			
	Day 1: Jan to March	Day 2: April to June	Day 3: July to Sep	Day 4: Oct to Dec	Day 5: Jan to March	Day 6: April to June	Day 7: July to Sep	Day 8: Oct to Dec
<b>Signing up Contracts</b>	<ul style="list-style-type: none"> <li>Cycle theft insurance with no choice option</li> <li>Electricity contract</li> </ul>	<ul style="list-style-type: none"> <li>Mobile phone contract</li> </ul>	<ul style="list-style-type: none"> <li>Dental insurance</li> <li>Income protection insurance</li> </ul>	<ul style="list-style-type: none"> <li>New electricity contract (in case of contract termination)</li> </ul>	-----	-----	-----	-----
<b>Reacting to Notifications</b>	-----	-----	<ul style="list-style-type: none"> <li>Stolen cycle, paying €1,000 for new cycle</li> <li>Refund for stolen cycle of €1,000</li> </ul>	<ul style="list-style-type: none"> <li>Price increase notification letter</li> <li>Contract extension at higher price</li> <li>Selection of new contract</li> </ul>	<ul style="list-style-type: none"> <li>Tariff change for cycle insurance</li> </ul>	<ul style="list-style-type: none"> <li>Optional tariff upgrade for income insurance</li> </ul>	<ul style="list-style-type: none"> <li>Refund dental insurance or</li> <li>Invoice for teeth cleaning</li> </ul>	<ul style="list-style-type: none"> <li>Optional tariff upgrade of mobile phone contract or</li> <li>Invoice for extra GB usage</li> </ul>
<b>Earning Household Budget</b>	<ul style="list-style-type: none"> <li>Memory game with chance of receiving €30</li> </ul>	<ul style="list-style-type: none"> <li>Lottery scratch ticket with chance of winning €50</li> </ul>	<ul style="list-style-type: none"> <li>Memory game with chance of receiving €30</li> </ul>	<ul style="list-style-type: none"> <li>Customer Survey €350</li> </ul>	<ul style="list-style-type: none"> <li>Lottery scratch ticket with chance of winning €250</li> </ul>	<ul style="list-style-type: none"> <li>Memory game with chance of receiving €30</li> </ul>	-----	<ul style="list-style-type: none"> <li>Memory game with chance of receiving €30</li> </ul>
<b>Paying Invoices</b>	Payment of cumulative invoices per quarterly period							

**Figure 9: Summary of main actions per day**

It is important to note that all decisions on one day have consequences on the remaining days. For instance, participants who decided not to sign up a cycle theft insurance on day 1 face the consequences of purchasing a new bicycle and thus lose an extra amount of €1,000 from their household budget on day 3 (due to the fact that the bicycle was stolen).

On day 4 (i.e., before the end of the first year), participants receive a price increase notification letter from their energy provider. As the participants’ reactions towards the

differently framed price increase notification letters is the scope of this paper, we provide an extract of the original screenshots of actions which the participants faced in the mobile game in Figure 10.



**Figure 10: Screenshots of household budget game on day 4**

After reading the price increase notification letter, participants have to make a trade-off between whether to accept the price increase for the electricity service or to face the risk and effort of choosing another electricity provider at a price comparison site. Participants who chose to terminate the contract had to select a new tariff from a price comparison site and to fill in all required personal data to switch successfully to the competitive provider. The aim here was to create a realistic level of effort. After making a decision, participants were invited to a customer survey to evaluate the price increase.

Through integrating a survey, we are able to measure the extent to which variations in the two levers for framing price increase communication evokes marketplace metacognition. We use two separate scales to measure marketplace metacognition. The first scale measures customers' general recognition of marketing tactics in price increase letters. For that purpose, we adopt the six item scale measuring persuasion knowledge introduced by Bearden, Hardesty, and Rose (2001) to our context. The second scale refers to the incentives provided in price increase letters and measures customers' perceptions of

the service provider's good intentions. We use a four item scale to measure the strength of customers' belief that the service provider is offering an incentive for the customers' benefit. Table 16 provides a summary of the scales used for measuring marketplace metacognition.

Construct	Item	Based on
Persuasion Knowledge (Marketplace Metacognition I)	I know when a price increase notification letter is to be good to be true.	Bearden et al. 2001
	I can tell when a price increase notification letter has strings attached.	
	I have no trouble understanding when a service provider wants to push me to extent a contract at higher prices.	
	I can separate fact from fantasy in price increase notification letters.	
	I can see through marketing tactics in price increase notification letters.	
Perceived Good Intentions of Providing Incentives (Marketplace Metacognition II)	I realize when a service provider wants to push me to contract extension.	Own development following the approach by DeVellis (2011)
	I believe that by providing me with incentives, the electricity provider acts in my interest.	
	By providing me the option to receive an incentive, the electricity provider wants to give me a treat.	
	I believe that the electricity provider offers me a loyalty incentive solely out of pure self-interest.	
	I believe that the electricity provider offers me incentives to distract me from the price increase.	

**Table 16: Summary of the scales used for measuring marketplace metacognition**

In the survey, participants further give information on inferred motive of the price increase, locus of causality for the price increase, and inferred profit. These scales allow us to calculate several manipulation checks. Besides, participants give personal information pertaining to their psychographics and demographics, such as price fairness, trust in their service provider, price consciousness, switching effort, etc. Please refer to Appendix D.3 for an overview of all items that have been collected.

*Data collection and experimental conditions.* Participants were invited to play the household budget game by a European panel provider. The European panel provider preselected participants for the household game to ensure that participants belong to a household with an average electricity consumption of 3,000 kWh. Furthermore, the panel provider screened out non-decision makers in this category. We employed a between-subject design in the household budget game. Thus, we randomly assigned participants to one of the experimental price increase notification letters (i.e., conditions).

To entirely elaborate on the two levers for framing price increase communication, we experimentally varied six conditions.

Framing Price increase communication	Lever 1: Provision of Reason for Price Increase			Lever 2: Provision of Incentives		
	Price Increase	.22€/kWh to .24€/kWh			.22€/kWh to .25€/kWh	
Reason for Price Increase	External	Internal	No Reason	External		
Type of Incentives	-----			€30	120kWh	€15 + 60kWh
Condition	1	2	3	4	5	6

**Table 17: Overview of experimental conditions in Study 1**

As depicted in Table 17, we test the impact of the first lever by varying the reason for the price increase in conditions 1 to 3. In condition 1, participants learned that an energy tax had increased; in condition 2, participants were told that the companies' long lasting credo is to adjust the wages of their employees to the living costs. In contrast, no reason for the price increase was provided in condition 3.

In order to test the implications of the second lever, the price increase notification letters in conditions 4 to 6 include incentives, all of the same value. In particular, participants either receive €30 (condition 4), 120 kWh (condition 5), or €15 + 60 kWh (condition 6) if they extend the contract with the energy supplier. The reason for the price increase was the same as in condition 1 (external reason).

As depicted in Table 17, we varied the level of price increase between the two levers. All the conditions that offered a loyalty incentive contained a price increase from €0.22 per kWh to €0.25 per kWh. In the conditions without incentives (1-3), prices increased from €0.22 per kWh to €0.24 per kWh. Given the fact that we hold the average yearly consumption of all participants constant at 3,000 kWh and included a price guarantee for the next 12 months, the difference of €0.01 in price increase corresponds to an incentive value of €30 (or 120 kWh, or 60 kWh + €15). This way, we were also able to analyze the effect of the additional gain compared to only one loss of the same value.

*Results and discussion.* Overall, 758 participants played the household budget game. However, we excluded 72 participants who were obviously not motivated to achieve a good result. These participants skipped tasks, such as the games, which were not mandatory, but increased the household budget very easily. Apparently, these participants

did not take the game seriously, and were not willing to fulfill the required effort necessary to maximize their household budget. This resulted in 686 participants (333 were female, 353 male). Table 18 gives an overview of customers' churn rates and marketplace metacognition values in each of the six experimental conditions.

No.	Condition	n	Churn rate in %	Marketplace Metacognition I	Marketplace Metacognition II
1	External reason	115	47.0	4.62	/
2	Internal reason	120	52.5	4.77	/
3	Control group (no reason/incentive)	118	48.3	4.65	/
4	External reason + cash-back	119	34.5*	4.80	4.38
5	External reason + free units	103	26.2***	4.72	4.56
6	External reason + combined incentive	111	34.2*	4.66	4.46

\*\*\*/\* = significantly lower on a significance level of .001/.05 (one-sided) as compared to condition 1 (external reason only)

**Table 18: Overview of customers' churn rates and marketplace metacognition values**

*Effects of provision of reason for the price increase.* The manipulation of reasons had worked, as participants considered the electricity provider to be responsible for the price increase in condition 2 ( $M_{\text{LocusOfCausalityC2}} = 4.98$ ), but not in condition 1 ( $M_{\text{LocusOfCausalityC1}} = 3.10$ ;  $p < .001$ ). However, Table 18 shows that the provision of a reason by itself – regardless whether it is internal or external – does not have any significant effect on churn rate. These results are conflicting with previous research, but could perhaps be attributed to the specific kind of internal reason (i.e., increase of staff wages) with which participants might have been sympathetic (compare Habel et al., 2016). The fact that participants attested significantly better motives to the service provider when an internal reason as opposed to no reason was provided ( $M_{\text{InferredMotiveC2}} = 4.10$ ;  $M_{\text{InferredMotiveC3}} = 3.66$ ,  $p < .05$ ) supports this notion.

Interestingly, participants were undecided as to the locus of causality in condition 3 ( $M_{\text{LocusOfCausalityC3}} = 3.80$ ), neither attributing the missing reason to an external nor internal cause ( $p_{\text{C1vs.C3}} < .001$ ;  $p_{\text{C2vs.C3}} < .001$ ). Thus, it may be advantageous to withhold the information instead of admitting the company's responsibility, as customers do not automatically assume internal reasons when an explanation is missing.

General marketplace metacognition (Marketplace Metacognition I, Cronbach's- $\alpha = .873$ ) was almost equal between the three conditions, indicating that the provision of

reasons in the price increase notification letter did not provoke any mistrust or feelings of manipulation.

With regard to research question 1, we can therefore conclude that neither marketplace metacognition nor churn is provoked by the provision or absence of reasons. However, these results should be interpreted with caution, as other research has reported that external reasons cause more favorable customer reactions than internal reasons. Marketing managers can therefore assume that the provision of external reasons is recommendable, as consumer reactions are likely to be positive or neutral, whereas internal reasons should possibly only be provided in case they reflect a company's good intentions (e.g., improving its employees' situation).

*Effects of provision of incentives.* The provision of incentives did not provoke marketplace metacognition, neither. Participants' general marketplace metacognition (Marketplace Metacognition I) was moderate for all three incentive conditions (C4 – C6), and highly similar to the value reported for participants in C1, the respective control group (external reason, but no incentive). Furthermore, participants' specific marketplace metacognition (Marketplace Metacognition II, Cronbach's- $\alpha = .726$ ), designed to capture the specific effect of incentives on the perceived good intentions of the service provider, was similar between all three incentive conditions, indicating that type of incentive did not impact marketplace metacognition either.

The observation that neither the provision of reasons nor incentives do affect marketplace metacognition is of high interest, as our results report marketplace metacognition to be significantly higher for those participants who churned compared to those who prolonged their contract, as depicted in Table 19.

Thus, marketplace metacognition is related to churn, but the discussed levers for framing price increase communication do not have an impact on this perceptual reaction. Additionally, participants' assessments of the profits or motives of the service provider did not deteriorate.

<b>Churn</b>	<b>Marketplace Metacognition I</b>	<b>Marketplace Metacognition II</b>
No	4.52 (n=406)	4.22 (n=227)
Yes	4.97 *** (n=280)	4.98 *** (n=106)

\*\*\*  $p < .001$

**Table 19: Average marketplace metacognition I and II by behavioral outcome**

Consequently, companies may not have to fear any negative effects of marketplace metacognition when using incentives in form of cash-back or free units to counteract price increases. Instead, incentives only led to a positive effect, as all three types were able to significantly lower churn rate (c. Table 18).

Furthermore, it is important to note that in contrast to our initial numerical example (Appendix D.1), higher price increase increments (€0.25 vs. €0.24) in conditions 4 to 6 fully compensated the service provider's costs for the incentives. Therefore, the service provider's net profit per customer is the same as in the no-incentive conditions, with the advantage of a significantly lower churn rate.

With respect to research question 2, we can conclude that managers may take advantage of using incentives as long as their value outweighs their costs. In case of doubt with regard to the incentives overall cost-/profit ratio, marketing managers can even adapt the price increase to compensate the costs of the incentives, and still achieve a significant reduction in churn.

#### 5.4.2 Study 2: Price increase of an internet provider

*Experimental design.* Study 1 investigated the use of monetary or monetary-equivalent incentives (i.e., free units of the focal product), which represent a zero-sum game: the seller always loses the exact same amount of money that the customer saves. In contrast, providing customers with an upgrade is cost-efficient and does not cannibalize the regular revenue stream. Furthermore, the retail value of premium incentives might be higher than the costs that incurred with the provider (Foubert et al. 2018). Therefore, the aim of Study 2 was to extend results of Study 1 by exploring customer reactions to cost-efficient types of non-monetary incentives (i.e., upgrades and premiums). Varying the amount of control the customer has about the incentive (i.e., fixed premium, choice between premiums, surprise premium), we also examine whether the fit of the incentive is decisive.

We conducted an online scenario experiment and recruited participants via a European clickworker service comparable to Amazon MTurk. In the experiment, participants are supposed to imagine to have an internet contract with the fictitious provider “SurfMedia”, with which they are generally satisfied. They then receive a price increase notification letter where SurfMedia informs them that the monthly price needs to be adjusted from €24.99 to €27.98 (i.e., an increase of €2.99) due to increasing costs for operating the cable network. In condition 1, participants are offered no incentive. However, the contract is described to end 6 months earlier than in conditions 2 – 5, where participants are offered different kinds of incentives worth €20 (i.e., the approximate equivalent to  $6 * €2.99$ ) or more. Table 20 gives an overview of the 5 conditions (see Appendix D.4 for an illustration of the different letters).

Condition	Start of Contract	End of Contract	Number of Incentives	Value of Incentive	Type of Incentive
1	07/01/2017	06/30/2020	0	/	/
2	01/01/2018	12/31/2020	1	€20	4-months speed upgrade (250 Mbit/s instead of 100 Mbit/s)
3	01/01/2018	12/31/2020	1	“more than €20”	Mobile Bluetooth speaker
4	01/01/2018	12/31/2020	20	“more than €20”	Choice of 20 different in-kind gifts, including mobile Bluetooth speaker
5	01/01/2018	12/31/2020	1	“more than €20”	Surprise Incentive

Date of Letter : 17 June 2019 | Price increase starts 01 August 2019 |  
 Extraordinary termination right until 20 July 2019  
*See Appendix D.4 for a sample letter and pictures of the different incentives*

**Table 20: Overview of experimental conditions in Study 2**

Condition 2 offers a speed upgrade, that is, a non-monetary incentive directly related to the product and created by the provider himself, whereas conditions 3 to 5 use premium gifts as incentives.

For conditions 3 and 4, we did an extensive online research about premium gifts that different companies (e.g. electricity providers, banks, health insurance companies, newspapers) offer as loyalty-, signing or referral bonuses as an alternative to €20 cash-back or a €20 shopping voucher. We then selected 20 of these incentives, for example a mobile Bluetooth speaker, an electric blender, a smoothie maker, a smartwatch, a teapot, or wine glasses (c. Appendix D.4). Taking Amazon’s retail price in April 2019 as reference value, the average value of these incentives was €27.66, with prices ranging from

€14.95 to €41.36. A pre-test with 51 participants (21 male, average age 33) revealed that the Bluetooth speaker was the most popular product.

The price increase letter of condition 3 therefore offers this Bluetooth speaker as an incentive, described as a “high-quality loyalty bonus worth more than €20” (c. Appendix D.4). While condition 3 offers only this Bluetooth speaker, condition 4 informs participants that they can choose among 20 high-quality incentives, and that some of them are worth more than €20 (including the Bluetooth speaker). Finally, condition 5 offers the Bluetooth speaker as a surprise incentive, that is, participants do not know that the incentive they will receive is a Bluetooth speaker, and only get this information at the end of the survey. To trigger an optimal level of curiosity (c. van Dijk and Zeelenberg 2007), the surprise incentive is also described as being of high quality and worth more than €20 (compare Appendix D.4).

After reading the price increase letter, participants report whether they experience negative or positive arousal, using the affective slider by Betella and Verschure (2016). In an open-ended question, participants also indicate the first thoughts that come to their mind after reading the letter.

Participants then decide whether to accept the price increase or to end the contract, before evaluating their perception of the price increase letter. To measure whether participants feel that marketing tactics are in place (i.e., occurrence of marketplace metacognition), we adapt a scale that measures consumers’ general skepticism towards a stimulus (Holbrook and Batra 1987) and consumers’ skepticism towards a store’s promotion (Xia, Kukar-Kinney, and Monroe 2010) to our context. We also measure perceived fairness of the price increase and collect important situational controls (situational price sensitivity, willingness to switch) and demographics (age, gender, income). All scales can be found in Table 21.

Construct	Item	Adapted from	Cronbach's- $\alpha$
Negative Arousal (from -5=positive arousal to +4.9=negative arousal).	How do you feel after reading the letter from your internet provider? Move the slider to rate your feelings (anger <-> joy) and your affective state (calm-passive <-> wide awake-active). <i>Configuration:</i> <i>Pleasure: from 1 (= anger) to 100 (= pleasure)</i> <i>Arousal: from 1 (= no arousal) to 100 (= high arousal).</i> <i>Transformation using the following formula:</i> <i>(Pleasure - 50)*(Arousal)/(-1000)</i>	<i>Affective Slider</i> (Betella and Verschure 2016)	
	How do you feel about the price increase letter?		.857
General Skepticism (Skepticism I)	The price increase letter made me feel... ... skeptical. ... suspicious. ... distrustful.	Holbrook and Batra (1987)	
Skepticism towards the Offer (Skepticism II)	I think SurfMedia... ... tries to mislead its customers. ... wants to increase its revenue by fooling its customers. ... uses the price increase letter to deceive its customers about the price increase.	Xia, Kukar-Kinney, and Monroe (2010)	.789
Fairness of Price Increase	How do you feel about the price increase of €5/month?  I find the price increase... ... extremely unfair (1)/extremely fair (7). ... extremely unacceptable (1)/extremely acceptable (7). ... extremely unreasonable (1)/extremely reasonable.	Vaidyanathan and Aggarwal (2003)	.862
Situational Price Sensitivity	I am willing to make an extra effort to find a low price for an internet contract. I will change plans about concluding an internet contract if I find a better offer. I am sensitive to differences in prices of internet contracts.	Wakefield and Inman (2003)	.782
Willingness to Switch	When one of my contracts expires, I always actively look for new offers. If I find a better offer, I do not mind the effort of switching to another provider.	Own development	.746

**Table 21: Scales used in Study 2**

*Results and discussion.* 294 participants (161 male, average age 37 years) participated in the survey. We excluded 5 participants who had not read the price increase letter properly, as indicated by their answer of the open-ended question.

Demographics did not differ between the conditions, and all constructs were measured successfully (compare Table 21). The two scales measuring skepticism were positively correlated ( $r = .713$ ,  $n = 289$ ,  $p < .001$ ) and factor analysis revealed that all six items of the two scales load on the same factor. Therefore, we aggregated the six items into one construct (“marketplace metacognition” (MM); Cronbach’s- $\alpha = .885$ , AVE = .635, composite reliability = .912).

As in Study 1, marketplace metacognition was significantly higher for those who churned than for those who decided to prolong the contract. Those participants who decided to churn also showed significantly higher values of negative arousal and lower values of perceived fairness of the price increase.

Behavioral Outcome	n C1-5	Perceptual Outcome		
		Marketplace Metacognition (SD)	Negative Arousal (SD)	Perceived Fairness (SD)
Prolong	158	3.48 (1.21)	0.62 (1.00)	4.17 (1.01)
Churn	131	4.68 (1.24) ***	1.74 (1.38) ***	2.86 (0.94) ***

\*\*\*  $p < .001$

**Table 22: Average perceptual outcome by behavioral outcome**

Furthermore, we conducted a logistic regression analysis that included marketplace metacognition, negative arousal and fairness of the price increase as treatment predictors of churn, and situational price sensitivity and willingness to switch as covariates. Results showed that these variables were significant predictors of churn, and the model had high predictive power (correctly predicted observations: 81.3%; Nagelkerke’s  $R^2 = .592$ ).

Variable	$\beta$	Standard Error	Odds Ratio (Exp(B)-1)
Constant	-2.655 *	1.227	-
Marketplace Metacognition (Skepticism I + II)	.341 *	.163	.407
Negative Arousal	.420 **	.158	.522
Fairness of the Price Increase	-1.077 ***	.197	-.659
Situational Price Sensitivity	.410 *	.168	.506
Willingness to Switch	.470 **	.170	.599
*** $p < .001$ ** $p < .01$ * $p < .05$			
Cox and Snell pseudo r-square:	44.2%		
Nagelkerke pseudo r-square:	59.2%		
Chi-square:	166.843; df=5 ; $p < .001$		

**Table 23: Results of logistic regression of the influence of marketplace metacognition, negative arousal and fairness of the price increase on churn**

We then analyzed whether these constructs – and ultimate churn rates – differed between the conditions. While churn rates did not differ significantly between the incentive conditions, the overall churn rate in the incentive conditions was significantly higher than the churn rate in the control condition (C2-5: 49.3% vs. C1: 36.0%;  $\chi^2(1, n = 289) = 4.26, p < .05$ ).

We thus examined whether those variables that predict churn differed between condition 1 and conditions 2-5. There was a significant difference with regard to the perceived fairness of the price increase: participants in the control condition found the price increase to be less fair than participants in the incentive conditions ( $Fairness_{C1} = 3.81$ ;  $Fairness_{C2-5} = 3.48$ ;  $p < .05$ ). This result can probably be ascribed to countervailing cognitions caused by the incentives: in the open-ended question, participants from the incentive conditions stated 34 times that they do not understand why incentives are offered in conjunction with a price increase, indicating that they are angry about indirectly paying for something they have not asked for.

Furthermore, a visual inspection of marketplace metacognition values in the different conditions revealed that these were almost equal in conditions 1 and 2, but higher in conditions 3-5, and this difference was again significant ( $MM_{C1-2} = 3.83$ ;  $MM_{C3-5} = 4.22$ ;  $p < .05$ ).

C.	Incentive	n	Churn rate in %	Marketplace Metacognition (SD)	Fairness (SD)
1	No Incentive	86	36.0	3.83 (1.26)	3.81 (1.12)
2	Speed Upgrade	53	49.1	3.80 (1.41)	3.55 (1.32)
3	Bluetooth Speaker	45	44.4	4.10 (1.08)	3.41 (1.14)
4	Choice of premium incentives (20)	52	50.0	4.32 (1.55)	3.34 (1.25)
5	Surprise Incentive (1)	53	52.8	4.27 (1.48)	3.60 (1.05)

**Table 24: Overview of customers' churn rates, marketplace metacognition values and fairness perceptions**

Thus, the premium incentives apparently raised higher levels of skepticism about marketing tactics than the upgrade that was directly linked to the focal product and created by the provider himself. With regard to the three premium incentives, there were no remarkable differences between the conditions.

Overall, data of Study 2 suggest that the provision of incentives in form of upgrades or premiums can increase churn rates because they potentially lower perceived fairness and increase marketplace metacognition. With regard to research question 2, these data suggest that managers should not offer upgrades or premium incentives in combination with the announcement of a price increase, because consumers might think that they have to pay for something they have not asked for.

## 5.5 Summary and implications

Drawing on prior research on price increase communication and using insights from customer relationship management techniques, this paper investigates how the provision of reasons and incentives affects customers' perceptions and churn rates.

Specifically, we analyze two alternative marketing approaches that address behavioral biases to frame a price increase letter. First, drawing from research insights on price increases, we analyze whether the provision of (internal vs. external) reasons attenuates customers' perceptions of a price increase and their resulting churn rate. Second, by referring to mental accounting theories, we investigate whether the provision of a loyalty incentive mitigates the negative consequences of a price increase (Heath et al., 1995; Mazumdar & Jun, 1993).

However, focusing only on the direct effect of framing of incentives on the behavioral outcome (i.e., churn) might be too narrow because applying these marketing tactics could make customers suspicious, thus evoking marketplace metacognition. Yet, previous research provides no insights on how loyalty incentives and price increases interact in their effect on both customers' marketplace metacognition and churn rate. The two applied marketing framing approaches are grounded in several marketing theories according to which controversial predictions on the effect on churn can be derived. Therefore, it is unclear which of the specific theories dominates the overall effect of the marketing framing approach on churn. We question whether the application of mental accounting theory (i.e., bundle of a price increase and a loyalty incentive) outweighs the effect of potential marketplace metacognition (i.e. customers' skepticism regarding the good intentions of the firm).

Results of the first study indicate that the provision of reasons does not affect marketplace metacognition nor churn. Furthermore, results of this study support the principles

of mental accounting: here, the provision of loyalty incentives in form of cash-back or free units of the focal product reduced customers' churn rates.

Marketing managers may thus take advantage by applying the principles of mental accounting and consequently consider providing customers with a monetary or monetary-equivalent loyalty incentive (i.e., gain) when communicating a price increase (i.e., loss). Furthermore, it may be profitable to increase prices to an extent that compensates the costs of such incentives, as churn is likely to be lower than for a correspondingly smaller price increase without incentives.

However, marketing managers must be cautious with regard to the type of incentive they employ. On the one hand, incentives that directly offset part of a price increase (i.e., incentives in form of cash-back or free units of the focal product) help to resettle customers' mental accounting balance, and can thus lead to lower churn rates. On the other hand, "nice-to-have" incentives such as upgrades or unrelated premiums increase customers' doubts about the necessity of the price increase, which can result in decreased fairness perceptions and higher churn rates.

We conducted our studies in two different contexts, and made sure to mimick reality as closely as possible. However, a limitation of our findings is that they are not based on field studies, meaning the data do not report real customer decisions. Study 2 is a scenario experiment where respondents' decisions did not imply actual consequences. In contrast, Study 1 was incentive-compatible, meaning that results from Study 1 are potentially more robust than results from Study 2. While we put great efforts into making Study 1 incentive-compatible, churn decisions still take place in a hypothetical environment. Ideally, future research should therefore test our findings in a field study. However, price increases are a very delicate subject, which makes it difficult to find a cooperation partner who is willing to test different price increase communication approaches on a large scale.

Despite this restriction, our findings could also be classified as conservative. The markets employed in our studies (energy and telecommunications) are both characterized by high competition and a highly generic product offer. In markets where customer lock-in is higher (e.g. insurances) or products are more differentiated (e.g. newspaper subscriptions), providing a cash-back/in-kind incentive as compensation could be even

more effective in discouraging churn, and negative effects of marketplace metacognition could be less severe.

## 6 Conclusion

Surprise is a prevalent construct in marketing research. While earlier research has mainly focused on surprise as an emotion that occurs through expectation-disconfirmation, there is an evolving stream of research on surprise as an effect of uncertainty-resolution.

Part of this research is motivated by the growing market for surprise goods, that is, the sale of products or services of which (some) attributes are concealed (= opaque goods), or which are selected by the seller from a set of alternatives (= probabilistic goods). Surprise goods are already known from the area of gift-giving and -receiving, and different studies have shown that using surprise goods as incentives to motivate or reward consumers can have various beneficial effects. However, it is also possible for consumers to purchase surprise goods, as surprise selling has gained popularity and can be found in more and more areas. From hotels to complete holiday trips, restaurant menus, subscription boxes and FMCG products, there exists a plethora of examples where consumers do not know what they are buying.

Research has already demonstrated that selling discounted surprise goods helps the seller to increase revenue: the sale of surprise goods at a cheaper price than transparent goods segments customers according to their preference strengths, and improves efficiency with regard to capacity utilization and inventory management. However, there is little research on the effects of selling surprise goods at the same price as transparent goods, and it is thus unclear how the sale of surprise goods without a discount affects sales and customer reactions.

This thesis contributes to closing this research gap by investigating sales effects of undiscounted surprise goods. As opaque and probabilistic goods differ with respect to their inherent uncertainty, they likely have different effects, which are therefore investigated in separate studies to answer distinct research questions.

The first three studies are described in research article 1 (chapter 3) and answer research question 1.

*Research question 1: Should sellers offer undiscounted opaque goods, or should they rather offer all items as transparent goods?*

In all three studies, opaque goods did not offer participants a financial advantage compared to fully specified transparent goods. In Study 1, sales increased significantly when

a seller offered some items of his assortment as opaque goods, which also helped to attract new customers to the product category. In Study 2, sales of opaque goods were significantly higher than sales of the same transparent goods, and buyers were also more satisfied with their purchase and the purchase experience. In Study 3, product evaluation improved significantly when products were presented as opaque goods.

These findings suggest that selling undiscounted opaque goods is beneficial to the seller, who profits directly and indirectly from positive effects: the sale of undiscounted opaque goods increases revenue as well as consumers' satisfaction with the purchase.

With regard to research question 1, offering undiscounted opaque goods can thus be considered recommendable.

The conducted studies examined overall sales effects with the aim to derive a recommendation for sellers regarding the introduction of undiscounted surprise goods to their assortment. However, there are certainly boundaries to these effects. As discussed in chapter 3, the positive effects of opaque goods most likely apply to low-risk contexts, and can vary with regard to different situational variables, such as the reason or purpose of the purchase, and individual factors, such as consumers' tolerance for uncertainty.

The favorable findings reported in research article 1 can thus constitute a starting point to stimulate future research on specific drivers of purchasing opaque goods, and specific implications with regard to when and why the sale of undiscounted opaque goods is most beneficial.

Furthermore, there is also a lack of research with regard to the sale of undiscounted probabilistic goods. A probabilistic good consists of multiple component items, and the seller decides which of these items s/he assigns to the consumer. If probabilities are unequally distributed, consumers might conclude that less probable items are more desirable (chance–quality heuristic), which means that probabilistic goods could lead to context effects within the assortment.

The subsequent three studies of the thesis presented in research article 2 (chapter 4) thus investigated the related research question 2.

*Research question 2: Do allocation likelihoods of component goods impact consumers' choice likelihood and perception of transparent goods?*

Study 1 compared participants' choice between two products when probabilities of the component goods were equally vs. unequally distributed. When probabilities were equally distributed, one item had a considerably higher market share than the other item, and these shares remained unchanged when a lower probability was assigned to this high-share item. However, when a lower probability was assigned to the low-share item, its choice share increased significantly. Furthermore, participants estimated higher prices for the low-share item when it had a lower probability of assignment.

Similar results were found in Study 2 that used a setting of three items, of which one had a considerably higher market share than the other two. Again, the allocation likelihood within the probabilistic good only increased the price perception and choice of the low-share items. Study 3 used a setting comparable to Study 2, with the difference that Study 2 gave away items for free, whereas Study 3 sold the items, each for the same price. Again, choice shares of the low-share items increased, despite prices being revealed to consumers, and equal for all three items.

With regard to research question 2, the results of these three studies provide converging evidence that unequal allocation likelihoods of component goods within a probabilistic good increase consumers' choice and price perception of items that have a low share within the assortment.

This nuanced finding is interesting for both research and practice.

Retailers could use the demonstrated effect of a chance–quality heuristic to increase sales of less popular items within the assortment, without the need to reduce prices.

With regard to research, this finding underscores the importance of taking a broader perspective on probabilistic selling. Current research has focused on revenue effects given that a certain share of customers is served with a probabilistic good, and demonstrated potential cannibalization of transparent goods. Thereby, research has neglected that extending the assortment by creating a probabilistic good can also lead to context effects that favor transparent goods. The studies in research article 2 shed light on one such context effect, demonstrating that probabilistic goods may serve as a new type of decoy. This is particularly intriguing, because a probabilistic good is an additional synthetic choice option created through combining already existing items into one set. Thus, probabilistic goods represent a potential cure to the general criticism that decoy items are difficult to implement because suppliers do not want to create unwanted items, and retailers do not want to carry products that do not sell.

The question whether sellers can frame their offer in a way that influences consumers' decision making is also central to the third part of this thesis. Here, the question arises whether sellers can mitigate negative consequences of an unexpected price increase (i.e., a negative surprise) by offering an incentive (i.e., a positive surprise).

*Research question 3: Do incentives reduce churn rates in the context of price increases, and if so, which type of incentive should be used?*

This question was examined in two studies. Study 1 was conducted in form of an incentive-compatible game and investigated consumers' reactions to a price increase of their electricity provider. The electricity provider offered a cash-back incentive and/or free units as initial compensation for the price increase. These incentives effectively reduced churn rates and thereby increased the fictitious provider's revenue, as the costs of the incentives were offset by a marginally higher price increase.

Study 2 used a scenario of a price increase of an internet provider who offered an upgrade or premiums in its price increase notification letter. Results were different from those in Study 1, because this time, incentives increased churn rates. In the conditions offering a premium incentive, this result can most likely be ascribed to the fact that participants engaged in marketplace metacognition: they had doubts about the necessity of the price increase and wondered how a firm that needs to raise prices is able to finance incentives.

Consequently, the communication of price increases remains a delicate topic. With regard to research question 3, it can be concluded that incentives are able to reduce churn rates, but could also backfire and increase consumers' reactance to a price increase. With respect to the type of incentive, incentives that directly offset a price increase are preferable to incentives that offer extra value, because the latter could make consumers think that they have to indirectly pay for something they have not asked for.

To sum it up, this thesis investigated sales effects of undiscounted surprise goods in three regards. The first research project investigated the sale of undiscounted opaque goods, and studies found positive effects on sales and consumers' purchase satisfaction. The second research project investigated the sale of undiscounted probabilistic goods, where studies showed that sellers can meticulously design a probabilistic good to influence consumers' item preferences within the assortment context. The third research project examined the use of a surprise good as an incentive in price increase communication, where the surprise good – as well as other premium incentives – increased consumers' skepticism, resulting in a reduction of the service provider's sales.

As shown in the literature review, the sale of surprise goods is still a nascent research topic, particularly with regard to empirical consumer studies. This thesis therefore represents an important contribution to this under-researched field, which will hopefully evolve in the following years.

Practitioners have already embraced the sale of surprise goods, and the described research findings can serve as an encouragement for various kinds of sellers – from small local service providers to large consumer brands – to introduce surprise goods to their assortment. Consumers themselves should also consider the purchase of surprise goods, as these can alleviate decision making and lead to enhanced purchase satisfaction.

## 7 Appendices

### 7.1 Appendix A: Supplementary material for chapter 2

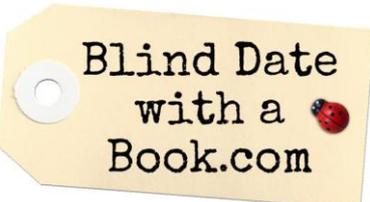
2.1 Douglas	2.2 Handelsblatt	2.3 GoCase
		
<p><a href="https://web.archive.org/web/20190710184609/https://subscriptionboxramblings.com/2017/08/adore-coupon-code-free-surprise-gift-65-purchase/">https://web.archive.org/web/20190710184609/https://subscriptionboxramblings.com/2017/08/adore-coupon-code-free-surprise-gift-65-purchase/</a></p>	<p><a href="https://web.archive.org/web/20190709205451/https://www.dealdoktor.de/gratisartikel-kostenlos/handelsblatt-bonus-deal/">https://web.archive.org/web/20190709205451/https://www.dealdoktor.de/gratisartikel-kostenlos/handelsblatt-bonus-deal/</a></p>	<p><a href="http://web.archive.org/web/20190710184449/https://www.gocase.com/">http://web.archive.org/web/20190710184449/https://www.gocase.com/</a></p>

2.4 Christ	2.5 Adore Me
	
<p><a href="https://web.archive.org/save/https://dealking.de/detail/25871/Osterspecial-bei-Christ-Zu-jedem-Jette-Kauf-ab-69-00-Euro-gibts-ein-Geschenk-fuer-69-90-Euro-GRATIS">https://web.archive.org/save/https://dealking.de/detail/25871/Osterspecial-bei-Christ-Zu-jedem-Jette-Kauf-ab-69-00-Euro-gibts-ein-Geschenk-fuer-69-90-Euro-GRATIS</a></p>	<p><a href="https://web.archive.org/web/20190710184609/https://subscriptionboxramblings.com/2017/08/adore-coupon-code-free-surprise-gift-65-purchase/">https://web.archive.org/web/20190710184609/https://subscriptionboxramblings.com/2017/08/adore-coupon-code-free-surprise-gift-65-purchase/</a></p>

3.1 Douglas	3.2 28 Black	3.3 Milka
		
<p><a href="http://web.archive.org/web/20190710185202/https://www.dealdoktor.de/user-deals/deals/gratisartikel-kostenlos/douglas-ab-39-mbw-gratis-duftminiatur/">http://web.archive.org/web/20190710185202/https://www.dealdoktor.de/user-deals/deals/gratisartikel-kostenlos/douglas-ab-39-mbw-gratis-duftminiatur/</a></p>	<p><a href="http://web.archive.org/web/20190710185311/https://www.about-drinks.com/28-black-sour-power-am-pos-gluecksrad-promotion-fuer-die-neue-28-black-sour-edition/">http://web.archive.org/web/20190710185311/https://www.about-drinks.com/28-black-sour-power-am-pos-gluecksrad-promotion-fuer-die-neue-28-black-sour-edition/</a></p>	<p><a href="https://web.archive.org/web/20190617154201/https://www.globus.de/de/unser_sortiment/marken_unserer_partner/milka/Super-Mario-Aktion.html">https://web.archive.org/web/20190617154201/https://www.globus.de/de/unser_sortiment/marken_unserer_partner/milka/Super-Mario-Aktion.html</a></p>

3.4 Heineken	3.5 Lidl
	
<p><a href="http://web.archive.org/web/20190710185411/https://gewinnspieletipps.de/heineken-kronkorken-gewinnspiel-uefa-champions-league-tickets/">http://web.archive.org/web/20190710185411/https://gewinnspieletipps.de/heineken-kronkorken-gewinnspiel-uefa-champions-league-tickets/</a></p>	<p><a href="http://web.archive.org/web/20190710200649/https://www.stick-it-now.de/edekarewe-co/lidl/lidl-stikeez-obst-gemuese-2018">http://web.archive.org/web/20190710200649/https://www.stick-it-now.de/edekarewe-co/lidl/lidl-stikeez-obst-gemuese-2018</a></p>

4.1 MylittleBox	4.2 Somethingstore	4.3 Chef's Table
		
<p><a href="http://web.archive.org/web/20190710184258/https://www.mylittlebox.net/">http://web.archive.org/web/20190710184258/https://www.mylittlebox.net/</a></p>	<p><a href="http://web.archive.org/web/20190710185547/http://www.somethingstore.com/">http://web.archive.org/web/20190710185547/http://www.somethingstore.com/</a></p>	<p>exemplary picture</p>

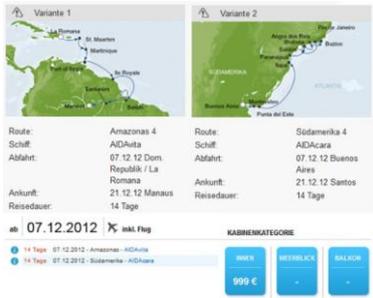
4.4 Pack Up + Go	4.5 Blinddatewithabook.com
	
<p><a href="http://web.archive.org/web/20190710190002/https://www.packupgo.com/">http://web.archive.org/web/20190710190002/https://www.packupgo.com/</a></p>	<p><a href="http://web.archive.org/web/20190710190159/https://blinddatewithabook.com/">http://web.archive.org/web/20190710190159/https://blinddatewithabook.com/</a></p>

5.1 Depot	5.2 Panini	5.3 Ferrero
		
<p><a href="http://web.archive.org/web/20190710190910/https://www.depot-online.com/vorratsglas-schraubdeckel-520ml-bunt-farbe-nicht-frei-waehlbar-ZTR0028240.html">http://web.archive.org/web/20190710190910/https://www.depot-online.com/vorratsglas-schraubdeckel-520ml-bunt-farbe-nicht-frei-waehlbar-ZTR0028240.html</a></p>	<p><a href="http://web.archive.org/web/20190710191005/https://www.paninishop.de/serie/sticker-sammelspass">http://web.archive.org/web/20190710191005/https://www.paninishop.de/serie/sticker-sammelspass</a></p>	<p><a href="http://web.archive.org/web/20190710191216/https://www.kinder.com/de/de/kinder-uberraschung">http://web.archive.org/web/20190710191216/https://www.kinder.com/de/de/kinder-uberraschung</a></p>

5.4 Raffle ticket booth at a fun fair	5.5 Zoologischer Stadtgarten Karlsruhe
	
<p>exemplary picture</p>	<p><a href="http://web.archive.org/web/20190710191835/https://www.karlsruhe.de/b3/freizeit/zoo">http://web.archive.org/web/20190710191835/https://www.karlsruhe.de/b3/freizeit/zoo</a></p>

6.1	6.2	6.3
<p>Cosmetics Studio Maria</p> 	<p>Eiszeit Herzog</p> <ul style="list-style-type: none"> <li>• Cherry</li> <li>• Lady</li> <li>• Egal</li> <li>• EiszeitDre</li> <li>• Gurke</li> <li>• Lakritz</li> <li>• Lebkucher</li> <li>• Maracuja</li> <li>• Marshmell</li> <li>• Mamor</li> </ul>	<p>Pringles</p> 
<p><a href="http://web.archive.org/web/20190710195650/https://www.auszeit-kosmetikstudio-maria.de/behandlungen/">http://web.archive.org/web/20190710195650/https://www.auszeit-kosmetikstudio-maria.de/behandlungen/</a></p>	<p><a href="http://web.archive.org/web/20190710195839/https://www.eiszeit-herzog.de/eissorten.html">http://web.archive.org/web/20190710195839/https://www.eiszeit-herzog.de/eissorten.html</a></p>	<p><a href="http://web.archive.org/web/20190710194239/https://www.pringles.com/nz/mystery-flavour/home.html">http://web.archive.org/web/20190710194239/https://www.pringles.com/nz/mystery-flavour/home.html</a></p>

6.4	6.5
<p>Purelei</p> 	<p>Thalia</p> 
<p><a href="http://web.archive.org/web/20190710195106/https://purelei.com/collections/mahina-club">http://web.archive.org/web/20190710195106/https://purelei.com/collections/mahina-club</a></p>	<p><a href="http://web.archive.org/web/20190710194933/https://www.thalia.de/shop/home/veranstaltungen/showDetail/19438/?jumpId=42">http://web.archive.org/web/20190710194933/https://www.thalia.de/shop/home/veranstaltungen/showDetail/19438/?jumpId=42</a></p>

7.1	7.2	7.3
<p>AIDA</p> 	<p>Burger King</p> 	<p>Fleurop</p> 
<p><a href="http://web.archive.org/web/20190710193753/https://www.aida.de/kreuzfahrt/angebot-e-buchen/aktionen/just-aida.19102.html">http://web.archive.org/web/20190710193753/https://www.aida.de/kreuzfahrt/angebot-e-buchen/aktionen/just-aida.19102.html</a></p>	<p><a href="http://web.archive.org/web/20190710193506/https://www.monsterdealz.de/haushaltgarten/lebensmittel/burger-king-mystery-box-fuer-295e/739121">http://web.archive.org/web/20190710193506/https://www.monsterdealz.de/haushaltgarten/lebensmittel/burger-king-mystery-box-fuer-295e/739121</a></p>	<p><a href="http://web.archive.org/web/20190710193615/https://www.fleurop.de/Shop/Floristen-Strauss.aspx">http://web.archive.org/web/20190710193615/https://www.fleurop.de/Shop/Floristen-Strauss.aspx</a></p>

7.4	7.5
<p>Lufthansa</p>  <p><b>Lufthansa Surprise</b>          Flugziel: Überraschung!          Flugpreis: überraschend günstig!          ab <b>69 €</b>          Was ist Lufthansa Surprise?</p>	<p>Konfiserie Endle</p> 
<p><a href="http://web.archive.org/web/20190710193922/https://www.lufthansa-surprise.com/">http://web.archive.org/web/20190710193922/https://www.lufthansa-surprise.com/</a></p>	<p><a href="http://web.archive.org/web/20190710201928/http://www.endle.de/suess.html">http://web.archive.org/web/20190710201928/http://www.endle.de/suess.html</a></p>

## 7.2 Appendix B: Supplementary material for chapter 3

### B.1: Examples of opaque goods created by FMCG brands / subscription boxes

The following table shows pictures and slogans of opaque goods created by FMCG brands / subscription boxes.

Example	Source / Slogan
	<p>Haribo Gold-Bears “Riddle Edition“, 2017.  <i>Guess the 6 flavors and win!</i>  <a href="https://www.haribo.com/deAT/news/news/news/4521/title/haribo-goldbaeren-raetsel-edition.html">https://www.haribo.com/deAT/news/news/news/4521/title/haribo-goldbaeren-raetsel-edition.html</a></p>
	<p>Müllerlächel, “Secret Sorts“, 2015.  <i>Do you have taste? Guess the four flavors and win!</i>  <a href="https://www.flickr.com/photos/like_the_grand_canyon/25134670744/in/photostream/">https://www.flickr.com/photos/like_the_grand_canyon/25134670744/in/photostream/</a></p>
	<p>OREO, „Mystery Oreo“, 2017.  <i>Guess the flavor for a chance to win \$50,000!</i>  <a href="https://www.foodandwine.com/news/mystery-oreos-flavor-fruity-pebbles">https://www.foodandwine.com/news/mystery-oreos-flavor-fruity-pebbles</a></p>
	<p>Treacle Moon, „that mysterious One“, 2018.  <i>Smell it and guess the scent!</i>  <a href="https://www.facebook.com/events/618991658439669/">https://www.facebook.com/events/618991658439669/</a></p>
	<p>BoxOfHappies, 2019.  <i>Subscribe Surprise Smile</i>  <a href="https://www.boxofhappies.com">https://www.boxofhappies.com</a></p>

### B.2: Study 1: Pictures of the café

The following pictures show the outside and the inside of the café at which Study 1 was conducted.



Café from the outside.

*You can see an installed poster on the lower left corner.*

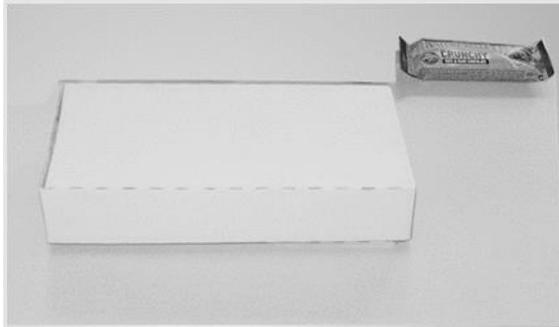


Café from the inside.

*You can see a poster on the fridge with the ice cream cups, and a display on the sales counter.*

*B.3: Study 2: Set-up of the cereal bar experiment*

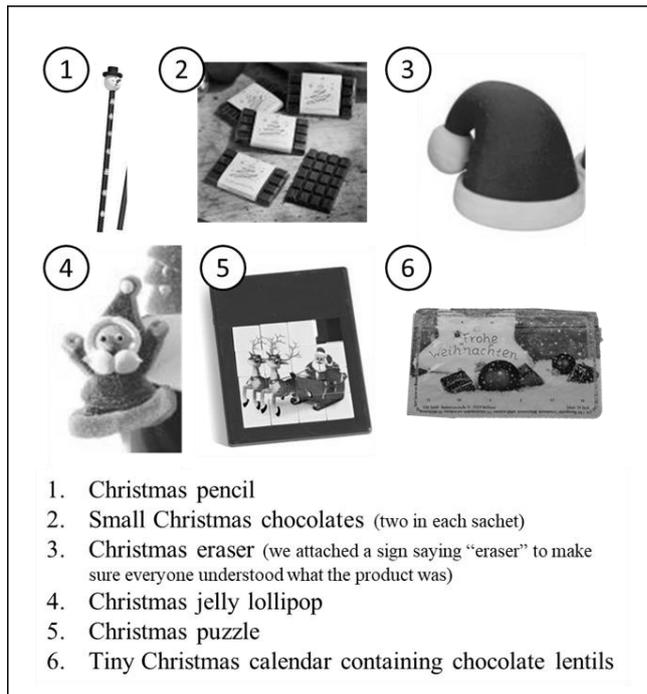
The following pictures show the setting of the cereal bar experiment (Study 2) in the different conditions.

	
<p>Condition 1: Table displaying 25 cereal bars in 5 different flavors and an open prepared “taste box” containing 1 bar of each flavor.</p>	<p>Condition 2: Table displaying one sample cereal bar with a closed prepared “taste box” containing this bar and 4 other flavors.</p>

### B.4: Study 3: Christmas calendar

The following picture shows the products used for the Christmas calendar of Study 3. The latter pictures show how the products were wrapped (with calendar no. 36 as example).

Products:



Sample christmas calendar (no. 36):



### 7.3 Appendix C: Supplementary material for chapter 4

#### C.1: Study 2: Survey stand and instruction sheet (condition 3)

The following pictures show the setting of Study 2.



Picture of the survey stand inviting passersby to participate.

*“Drink for lunch? Fill in the questionnaire and take away a lemon soda.”*



Poster in Condition 3:  
 Choose [B] or [A] or [C]  
 or let chance decide and roll  
 the die:  
 1 = try again  
 2 = B  
 3 = B  
 4 = A  
 5 = A  
 6 = C

*C.2: Study 3: Pop-up stand with prize wheel (condition 1)*

The following picture shows the pop-up stand used in Study 3.



## 7.4 Appendix D: Supplementary material for chapter 5

### *D.1: Numerical example for the profit implications of incentives in price increase communication based on customer lifetime value calculations*

#### 1. Background

We use the energy industry as context for this numerical example because in this industry, cost increases do frequently occur, resulting in severe price increases for services such as electricity (Natter, Ozimec, & Kim, 2015). A marketing expert of a leading European energy company provided information on major customer segments, margins, discount rates, and costs of production. According to the expert's knowledge, an annual electricity consumption of 3,000 kWh presents a major customer segment in the European energy market. Given this customer segment, the average customer margin in year one is equal to €75 and increases to €90 for each of the upcoming years. The costs of producing one unit of kWh are equal to €0.10/kWh and a typically used discount rate is 6.5%. Moreover, the marketing expert indicates that a reasonable marketing budget for incentives is equal to €30 per customer for this segment. However, the monetary value of €30 can be provided to customers in different types of incentives (i.e., nonmonetary, combined). Based on the current average market price of €0.25/kWh that customers pay for electricity, this could also be a "120 free-kWh" incentive, or a "60 free-kWh + €15" incentive. A European statistic on churn management for utilities indicates that an average churn rate of 5% can be observed for electricity (Borras & Serra, 2015). Another marketplace statistic shows that this churn rate is expected to increase tremendously when customers experience a price increase (Kreuzer Consulting, 2013). In particular, the study reports that a price increase motivates 62% of customers to think about switching to a lower priced competitor. To obtain a more accurate estimation of the churn rate after a price increase, we conducted an online pre-test.

#### 2. Procedure, data collection and results of the online pre-test

Participants of the online pre-test were obtained using a representative panel of a European country. Moreover, we preselected participants to ensure that they belong to a household with an average electricity consumption of 3,000 kWh. Besides, non-decision makers in this category were screened-out. We randomly assigned participants to one of the experimental price increase notification letters (i.e., conditions). There are 4 conditions, including condition 1, which only consists of a price increase (control group) and conditions 2-4, which provide either a monetary (i.e., €30), nonmonetary (i.e., 120 free-

kWh) or a combined loyalty incentive (i.e., 60 free-kWh + €15) in the price increase notification letter. In all conditions, we informed participants that there had been a tax increase and that this leads to the price increase. Moreover, we hold the level of price increase constant in each condition (i.e., 0.22 Cent/kWh to 0.25 Cent/kWh). Table D.1 provides an overview of churn rates for all experimental conditions.

	Condition	N	Churn
Control Group	No Incentive	207	.57
	Monetary Incentive: €30	212	.24 **
Single Incentive	Nonmonetary Incentive: 120 free-kWh	205	.32 **
	Combined Incentive: €15 + 60 free-kWh	207	.28 **

\*\*= significantly lower on a significance level of .01 as compared to no incentive.

**Table D.1: Overview of churn rates**

As summarized in table D1, churn rates are lower when bundling the price increase with an incentive. Furthermore, the results of t-tests show that mean churn rates of all incentive conditions are significantly lower than the no incentive condition ( $p < .01$ ).

### 3. Customer lifetime value calculation

We then study an exemplary scenario with a customer lifetime planning period of three years where the service provider increases the prices in the second year. Following the results of the online pre-test, we assume that churn rate increases from 5% to 57% in case of a price increase without an incentive (see above). However, when incentives are provided in the price increase communication, we use the churn rates obtained by the pre-test for each incentive type. The results of the profit calculations are summarized in Figure D.1.

Price increase communication without incentives					Price increase communication with incentives						
Churn rate	Year	Year 1	Year 2	Year 3	Total CLV (in €)	Churn rate	Year	Year 1	Year 2	Year 3	Total CLV (in €)
		5%	57%	5%				5%	24%, 32%, 28%	5%	
	Condition					Conditions					
	Case 1: No incentive	66.90	32.41	28.91	128.22	Cost for Incentive	Churn rate				
						Case 2: 30€	24%	66.90	38.19	51.10	156.19
						Case 3: 120 free-kWh = 12€	32%	66.90	44.42	45.72	157.05
						Case 4: 15€ + 60 free-kWh = 21€	28%	66.90	39.29	45.72	151.92

Applied Formula for Calculations:  

$$CLV = (m - IN) * \sum_{t=0}^n \left[ \frac{r^t}{(1+d)^t} \right]$$
 with m = margin; r = retention rate; d = discount rate; n = end of period; IN = incentive

**Figure D.1: Numerical example for the effects of incentives in price increase communication**

With respect to the profit implications for the price increase communication without incentives, total CLV is equal to €128.22. For the price increase communication with incentives, the results show that total CLV is higher for all incentive types as compared to the no incentive condition. Since costs for producing one-unit kWh are lower than customers' costs (€0.10 versus €0.25), the provision of a 120 kWh incentive is associated with the lowest costs for the service provider and thus leads to the highest CLV. To sum it up, when bundling the price increase with an incentive, service providers can benefit from an uplift in profits of about 20%, depending on the type of incentive.

D.2: Summary of actions per day in chronological order

Summary of Actions in the Household Budget Game								
Actions	First year				Second year			
	Day 1: Jan to March	Day 2: April to June	Day 3: July to Sep	Day 4: Oct to Dec	Day 5: Jan to March	Day 6: April to June	Day 7: July to Sep	Day 8: Oct to Dec
<b>Signing up Contracts</b>	1. Cycle theft insurance with no choice optional 3. Electricity contract	2. Mobile phone contract	6. Dental insurance 7. Income protection insurance	3. New electricity contract (in case of contract termination)				
<b>Reacting to Notifications</b>			1. Stolen cycle 2a. Refund for stolen cycle of €1,000 4. Professional tooth cleaning	1. Price increase letter (contract extension or termination)	1. Tariff change for cycle insurance	1. Optional tariff upgrade for income insurance	1a. Refund dental insurance	1. Optional tariff upgrade of mobile phone contract 2. Optional tariff upgrade of income protection insurance
<b>Earning Household Budget</b>	2. Memory game with chance of receiving €30	1. Lottery ticket with chance of winning €50	3. Memory game with chance of receiving 30€	2. Customer review 350€	2. Lottery ticket with chance of winning €250	2. Memory game with chance of receiving €30		3. Memory game with chance of receiving €30
<b>Paying Invoices</b>	4. Cycle theft invoice 5. Electricity invoice	3. Cycle theft invoice 4. Electricity invoice 5. Mobile phone invoice	2b. Invoice new cycle 5. Invoice professional tooth cleaning 8. Cycle theft invoice 9. Electricity invoice 10. Mobile phone invoice 11. Dental insurance invoice 12. Income protection insurance	4. Cycle theft invoice 5. Electricity invoice 6. Mobile phone invoice 7. Dental insurance 8. Income protection insurance	3. Cycle theft invoice 4. Electricity invoice 5. Mobile phone invoice 6. Dental insurance 7. Income protection insurance	3. Cycle theft invoice 4. Electricity invoice 5. Mobile phone invoice 6. Dental insurance 7. Income protection insurance	1b. Invoice professional tooth cleaning 2. Cycle theft invoice 3. Electricity invoice 4. Mobile phone invoice 5. Dental insurance 6. Income protection insurance	4. Cycle theft invoice 5. Electricity invoice 6. Mobile phone invoice 7. Dental insurance 8. Income protection insurance

### D.3: Overview of all multi-item scales used for the experiment

All items were measured on a 7 point Likert scale.

Construct	Item	Based on / Adapted from
Persuasion Knowledge (General Marketplace Metacognition I)	I know when a price increase notification letter is to be good to be true.	Bearden et al. 2001
	I can tell when a price increase notification letter has strings attached.	
	I have no trouble understanding when a service provider wants to push me to extent a contract at higher prices.	
	I can separate fact from fantasy in price increase notification letters.	
	I can see through marketing tactics in price increase notification letters.	
Perceived Good Intentions of Providing Incentives (Marketplace Metacognition II)	I realize when a service provider wants to push me to a contract extension.	Own development following the approach by DeVellis (2011)
	I believe that by providing me with incentives, the electricity provider acts in my interest	
	By providing me the option to receive an incentive, the electricity provider wants to give me a treat.	
	I believe that the electricity provider offers me a loyalty incentive solely out of pure self-interest.	
Inferred Profit	I believe that the electricity provider offers me incentives to distract me from the price increase.	Campbell (1999b)
	Due to the price increase, the service provider's profit increases.	
	As the service provider increases prices due to increasing costs, the profit increases.	
Locus of Causality	The price increase has no impact on the service provider's profit.	Vaidyanathan and Aggarwal (2003)
	The service provider has increased prices due to internal reasons.	
Locus of Control-ability	The reasons for the electricity price increase are independent from the service provider.	Vaidyanathan and Aggarwal (2003)
	The price increase is due to reasons that are beyond the volitional control of the service provider.	
Price consciousness	The service provider could have avoided the reasons for the price increase.	Donthu et al. (1996)
	I always look for cheaper tariffs before extending a contract.	
	I put a lot of effort into looking for cheaper tariffs.	
Switching effort	I am happy if I can conclude a cheaper contract.	Ganesh et al. (2000)
	For me or my partner it is rather difficult to find time to look for cheaper tariffs.	
	The savings I would realize with a cheaper tariff do not compensate the time and effort it takes to look for a new tariff.	

Motive of service provider	<p>With respect to the price increase letter, I evaluate the intention of the service provider as (good or bad).</p> <p>Based on the current price increase letter I can say that it is the intention of the service provider to exploit me.</p>	Campbell (1999b)
Fairness of price increase	<p>The electricity provider's price increase is fair.</p> <p>The electricity provider's price increase is reasonable.</p> <p>The electricity provider tries to treat its customers fairly.</p> <p>The electricity provider acts in its customers' interest.</p>	Homburg et al. (2005), Campbell (1999a)
Trust in service provider	<p>Over time, based on my experiences with my electricity provider, I got the impression that it keeps its promises.</p> <p>My electricity provider has a name that can be trusted.</p> <p>My electricity provider does not try to be what it can't be.</p>	Coulter and Coulter (2002)
Switching intentions	<p>I regularly switch the service providers.</p> <p>I am promptly up to look for alternative providers for contracts such as electricity, insurances etc.</p>	Own development following the approach by DeVellis (2011)

## D.4: Letters used in Study 2

### Sample price increase letter (condition 1):

# SurfMedia

Internet, wie ich es brauche

SurfMedia – Elberstraße 51 – 10179 Berlin  
Kunde Nr.: AP7449  
Datum: 14.06.2019

**SurfMedia**  
Elberstraße 51  
10179 Berlin  
Tel.: 030 1212658  
E-Mail: [info@surfmedia.de](mailto:info@surfmedia.de)  
Internet: [www.surfmedia.de](http://www.surfmedia.de)

### Informationen zu Ihrem Internetvertrag

Sehr geehrte Damen und Herren,

mit SurfMedia haben Sie sich für einen zukunftsfähigen Internetanbieter entschieden und surfen mit bis zu 100Mbit/s in einem modernen und weitverzweigten Breitbandkabelnetz.

Wir freuen uns sehr, dass wir Sie schon seit zwei Jahren zu unseren Kunden zählen dürfen. Bisher konnten wir den Preis für den Internetanschluss stabil halten. Jedoch sind insbesondere die Kosten für den Betrieb des Kabelnetzes in letzter Zeit deutlich gestiegen. Deshalb passen wir den Preis für den Internetanschluss nun an.

Was bedeutet das für Sie?  
Der Preis für Ihren Internetanschluss erhöht sich zum 01.08.2019 um 2,99€ pro Monat. Ihr monatlicher Basispreis beträgt somit ab August 27,98€ (statt bisher 24,99€). Wir sind überzeugt, dass Ihr Anschluss auch zu diesem Preis nach wie vor ein hervorragendes Preis-Leistungsverhältnis bietet.

Wenn Sie das Vertragsverhältnis jedoch aufgrund der Preisanpassung beenden möchten, können Sie bis einschließlich 20.07.2019 von Ihrem Sonderkündigungsrecht Gebrauch machen. In diesem Fall endet Ihr Vertrag am 31.07.2019.

Mit freundlichen Grüßen

*Anne Kunzen*  
Leiterin Kundenkommunikation

### Description of incentive (condition 2):

Zudem möchten wir uns für Ihre Treue mit einem viermonatigen Speed-Upgrade im Wert von 20€ bedanken: Vom 01.08.2019 - 30.11.2019 genießen Sie bei unbegrenztem Datenvolumen Download-Geschwindigkeiten von bis zu 250 Mbit/s.

Wenn Sie jedoch kein Upgrade wünschen, sondern das Vertragsverhältnis aufgrund der Preisanpassung beenden möchten, können Sie bis einschließlich 20.07.2019 von Ihrem Sonderkündigungsrecht Gebrauch machen. In diesem Fall endet Ihr Vertrag am 31.07.2019.

### Description of incentive (condition 3):

Zudem möchten wir uns für Ihre Treue mit einer hochwertigen Sachprämie im Wert von über 20€ bedanken:



**Mobiler Bluetooth-Lautsprecher „Fun Beats“**

Dieser portable Bluetooth-Lautsprecher hat eine Signalreichweite von 10 Metern und verfügt über ein integriertes FM-Radio sowie eine eingebaute LED-Lichtshow.

***Kundenfeedback:***

„Ein toller Artikel, der Spaß macht! Schön für ein abendliches Beisammensein mit schöner Musik. Kann ich nur weiterempfehlen!“

Die Prämie wird Ihnen Anfang August 2019 bequem frei Haus zugestellt.

Wenn Sie jedoch keine Prämie wünschen, sondern das Vertragsverhältnis aufgrund der Preisanpassung beenden möchten, können Sie bis einschließlich 20.07.2019 von Ihrem Sonderkündigungsrecht Gebrauch machen. In diesem Fall endet Ihr Vertrag am 31.07.2019.

### Description of incentive (condition 4):

Zudem möchten wir uns für Ihre Treue mit einer hochwertigen Sachprämie bedanken, zum Beispiel mit einem mobilen Bluetooth-Lautsprecher im Wert von über 20 € (Kundenfeedback: „Ein toller Artikel, der Spaß macht! Schön für ein abendliches Beisammensein mit schöner Musik. Kann ich nur weiterempfehlen!“). Sie können frei auswählen, welche der folgenden Sachprämien Sie erhalten möchten:



Teilen Sie uns Ihre Wunsch-Prämie einfach mit – telefonisch, per Mail oder ganz einfach unter [www.surfmedia.de/prämie](http://www.surfmedia.de/prämie). Die ausgewählte Prämie wird Ihnen Anfang August 2019 bequem frei Haus zugestellt.

### Description of incentive (condition 5):

Zudem möchten wir uns für Ihre Treue mit einer hochwertigen Überraschungsprämie bedanken:



Überraschung für Sie!

Ihr hochwertiges Überraschungsgeschenk hat einen Wert von über 20 €.

*Kundenfeedback:*

„Ein toller Artikel, der Spaß macht! Perfekt für ein abendliches Beisammensein mit schöner Musik. Kann ich nur weiterempfehlen!“

Die Überraschungsprämie wird Ihnen Anfang August 2019 bequem frei Haus zugestellt.

## 8 References

- Adams, William J. and Janet L. Yellen (1976), “Commodity Bundling and the Burden of Monopoly,” *The Quarterly Journal of Economics*, 90 (3), 475–498.
- Ailawadi, Kusum L., Karen Gedenk, Tobias Langer, Yu Ma, and Scott A. Neslin (2014), “Consumer Response to Uncertain Promotions. An Empirical Analysis of Conditional Rebates,” *International Journal of Research in Marketing*, 31 (1), 94–106.
- Alavi, Sascha, Torsten Bornemann, and Jan Wieseke (2015), “Gambled Price Discounts: A Remedy to the Negative Side Effects of Regular Price Discounts,” *Journal of Marketing*, 79 (2), 62–78.
- Alden, Dana L., Ashesh Mukherjee, and Wayne D. Hoyer (2000), “The Effects of Incongruity, Surprise and Positive Moderators on Perceived Humor in Television Advertising,” *Journal of Advertising*, 29 (2), 1–15.
- Anderson, Chris K. and Xiaoqing Xie (2014), “Pricing and Market Segmentation Using Opaque Selling Mechanisms,” *European Journal of Operational Research*, 233 (1), 263–272.
- Anderson, Rolph E. (1973), “Consumer Dissatisfaction. The Effect of Disconfirmed Expectancy on Perceived Product Performance,” *Journal of Marketing Research*, 10 (1), 38.
- Andrews, Melinda L., Ray L. Benedicktus, and Michael K. Brady (2010), “The Effect of Incentives on Customer Evaluations of Service Bundles,” *Journal of Business Research*, 63 (1), 71–76.
- Apostolou, Menelaos (2011), “Why Men Collect Things? A Case Study of Fossilised Dinosaur Eggs,” *Journal of Economic Psychology*, 32 (3), 410–417.
- Arkes, Hal R., Cynthia A. Joyner, Mark V. Pezzo, Jane G. Nash, Karen Siegel-Jacobs, and Eric Stone (1994), “The Psychology of Windfall Gains,” *Organizational Behavior and Human Decision Processes*, 59 (3), 331–347.
- Arnold, Mark J. and Kristy E. Reynolds (2003), “Hedonic Shopping Motivations,” *Journal of Retailing*, 79 (2), 77–95.
- Arora, Neeraj, Xavier Dreze, Anindya Ghose, James D. Hess, Raghuram Iyengar, Bing Jing, Yogesh Joshi, V. Kumar, Nicholas Lurie, and Scott Neslin (2008), “Putting One-

- to-One Marketing to Work. Personalization, Customization, and Choice,” *Marketing Letters*, 19 (3-4), 305–321.
- Babin, Barry J., William R. Darden, and Mitch Griffin (1994), “Work And/or Fun. Measuring Hedonic and Utilitarian Shopping Value,” *Journal of Consumer Research*, 20 (4), 644–656.
- Barnes, Donald C., Joel E. Collier, Vince Howe, and Douglas K. Hoffman (2016), “Multiple Paths to Customer Delight. The Impact of Effort, Expertise and Tangibles on Joy and Surprise,” *Journal of Services Marketing*, 30 (3), 277–289.
- Bartsch, Karen and David Estes (1997), “Children's and Adults' Everyday Talk About Surprise,” *British Journal of Developmental Psychology*, 15 (4), 461–475.
- Beatty, Sharon E. and Elizabeth M. Ferrell (1998), “Impulse Buying. Modeling Its Precursors,” *Journal of Retailing*, 74 (2), 169–191.
- Ben Mimoun, Mohamed S., Marion Garnier, and Delphine Depledt (2015), “My Little Box, Oh My Little Box a Video-Netnographic Study on the Expression of Values in Subscription-Based E-Commerce,” *Journal of Applied Business Research*, 31 (3), 1159–1166.
- Berger, Matthias, Christian Matt, Jochen Gönsch, and Thomas Hess (2019), “Is the Time Ripe? How the Value of Waiting and Incentives Affect Users’ Switching Behaviors for Smart Home Devices,” *Schmalenbach Business Review*, 71 (1), 91–123.
- Betella, Alberto and Paul F. M. J. Verschure (2016), “The Affective Slider. A Digital Self-Assessment Scale for the Measurement of Human Emotions,” *PloS one*, 11 (2).
- Bettman, James R. (1973), “Perceived Risk and Its Components. A Model and Empirical Test,” *Journal of Marketing Research*, 10 (2), 184–190.
- Bijmolt, Tammo H.A., Harald J. van Heerde, and Rik G.M. Pieters (2018), “New Empirical Generalizations on the Determinants of Price Elasticity,” *Journal of Marketing Research*, 42 (2), 141–156.
- Bischof, Severin F., Tim M. Boettger, and Thomas Rudolph (2019), “Curated Subscription Commerce. A Theoretical Conceptualization,” *Journal of Retailing and Consumer Services*, In Press.
- Bodur, H. O. and Bianca Grohmann (2005), “Consumer Responses to Gift Receipt in Business-to-Consumer Contexts,” *Psychology and Marketing*, 22 (5), 441–456.

- Bracha, Anat and Donald J. Brown (2012), "Affective Decision Making. A Theory of Optimism Bias," *Games and Economic Behavior*, 75 (1), 67–80.
- Brothers, Laura (2013), "People Are Going Nuts over Groupon's \$10 Mystery Deal," (accessed October 31, 2018), [available at <http://www.businessinsider.com/groupons-midsummer-mystery-deal-takes-off-2013-8?IR=T>].
- Brown, Christina L. and Aradhna Krishna (2004), "The Skeptical Shopper. A Metacognitive Account for the Effects of Default Options on Choice," *Journal of Consumer Research*, 31 (3), 529–539.
- Burton, Scot, Laurel A. Cook, Elizabeth Howlett, and Christopher L. Newman (2015), "Broken Halos and Shattered Horns. Overcoming the Biasing Effects of Prior Expectations Through Objective Information Disclosure," *Journal of the Academy of Marketing Science*, 43 (2), 240–256.
- Campbell, Margaret C. (1999a), "Perceptions of Price Unfairness. Antecedents and Consequences," *Journal of Marketing Research*, 36 (2), 187–199.
- (1999b), "Pricing Strategy & Practice "Why Did You Do That?". The Important Role of Inferred Motive in Perceptions of Price Fairness," *Journal of Product & Brand Management*, 8 (2), 145–153.
- Catry, Bernard (2003), "The Great Pretenders. The Magic of Luxury Goods," *Business Strategy Review*, 14 (3), 10–17.
- Celik, Levent (2014), "Information Unraveling Revisited. Disclosure of Horizontal Attributes," *The Journal of Industrial Economics*, 62 (1), 113–136.
- Chandon, Pierre, Brian Wansink, and Gilles Laurent (2000), "A Benefit Congruency Framework of Sales Promotion Effectiveness," *Journal of Marketing*, 64 (4), 65–81.
- Chandran, Sucharita and Vicki G. Morwitz (2005), "Effects of Participative Pricing on Consumers' Cognitions and Actions. A Goal Theoretic Perspective," *Journal of Consumer Research*, 32 (2), 249–259.
- Chao, Yong, Lin Liu, and Dongyuan Zhan (2016), "Vertical Probabilistic Selling Under Competition. The Role of Consumer Anticipated Regret," *NET Institute Working Paper*, 16-14.

- Chatterjee, Subimal, Timothy B. Heath, Sandra J. Milberg, and Karen R. France (2000), "The Differential Processing of Price in Gains and Losses. The Effects of Frame and Need for Cognition," *Journal of Behavioral Decision Making*, 13 (1), 61–75.
- Chen, Hsiang-Ting and Jingxue Yuan (2014), "Blind Savings or Unforeseen Costs? How Consumers Perceive the Benefits and Risks of Using Opaque Travel Selling Web Sites," *Journal of Vacation Marketing*, 20 (4), 309–322.
- Chen, Hsiangting S., Tun-Min Jai, and Jingxue Yuan (2017), "Unveiling the Role of Information Levels in Consumers' Evaluative Process on Opaque-Selling Hotel Websites," *International Journal of Contemporary Hospitality Management*, 29 (8), 2139–2158.
- Chen, Hsiangting S. and Jingxue Yuan (2016), "A Journey to Save on Travel Expenses. The Intentional Buying Process of Consumers on Opaque-Selling Websites," *Journal of Hospitality Marketing & Management*, 25 (7), 820–840.
- Chen, Ming-Yi (2016), "The Effects of Reward Type on Evaluations of an Online Lucky Draw," *Journal of Electronic Commerce Research*, 17 (2), 188–204.
- Chen, Shaoxiang, Guillermo Gallego, Michael Z. F. Li, and Bing Lin (2010), "Optimal Seat Allocation for Two-Flight Problems with a Flexible Demand Segment," *European Journal of Operational Research*, 201 (3), 897–908.
- Chen, Tony, Ken Fenyo, Sylvia Yang, and Jessica Zhang (2018), "Thinking Inside the Subscription Box: New Research on E-Commerce Consumers," (accessed June 17, 2019), [available at <https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/thinking-inside-the-subscription-box-new-research-on-ecommerce-consumers>].
- Chernev, Alexander, Ulf Böckenholt, and Joseph Goodman (2015), "Choice Overload. A Conceptual Review and Meta-Analysis," *Journal of Consumer Psychology*, 25 (2), 333–358.
- Choi, Sungchul and Moontae Kim (2007), "The Effectiveness of "Scratch and Save" Promotions. The Moderating Roles of Price Consciousness and Expected Savings," *Journal of Product & Brand Management*, 16 (7), 469–480.
- Choi, Sungchul, Sang-June Park, Chun Qiu, and Mike Stanyer (2013), "The Discount Is Unfair. Egocentric Fairness in Risky Discounts," *Journal of Economic Psychology*, 39, 32–43.

- Choi, Sungchul, Mike Stanyer, and Moontae Kim (2010), "Consumer Responses to the Depth and Minimum Claimed Savings of "Scratch and Save (SAS)" Promotions," *Psychology and Marketing*, 27 (8), 766–779.
- Dahl, Darren W., Kristina D. Frankenberger, and Rajesh V. Manchanda (2003), "Does It Pay to Shock? Reactions to Shocking and Nonshocking Advertising Content Among University Students," *Journal of Advertising Research*, 43 (03), 268–280.
- Dao Thi Duc, Anh (2018) (Supervisor: Klingemann, Wiebke), "Der Einfluss probabilistischer Güter auf die Produktattraktivität," *Master Thesis*, IISM, Karlsruhe Institute of Technology.
- Darke, Peter R. and Cindy M.Y. Chung (2005), "Effects of Pricing and Promotion on Consumer Perceptions. It Depends on How You Frame It," *Journal of Retailing*, 81 (1), 35–47.
- Dawes, John (2009), "The Effect of Service Price Increases on Customer Retention," *Journal of Service Research*, 11 (3), 232–245.
- Derbaix, Christian and Joëlle Vanhamme (2003), "Inducing Word-of-Mouth by Eliciting Surprise – a Pilot Investigation," *Journal of Economic Psychology*, 24 (1), 99–116.
- Dhar, Ravi (1997), "Consumer Preference for a No-Choice Option," *Journal of Consumer Research*, 24 (2), 215–231.
- Dhar, Sanjay K., Claudia Gonzalez-Vallejo, and Dilip Soman (1995), "Brand Promotions as a Lottery," *Marketing Letters*, 6 (3), 221–233.
- Di Muro, Fabrizio and Kyle B. Murray (2012), "An Arousal Regulation Explanation of Mood Effects on Consumer Choice," *Journal of Consumer Research*, 39 (3), 574–584.
- Dodds, William B., Kent B. Monroe, and Dhruv Grewal (1991), "Effects of Price, Brand, and Store Information on Buyers' Product Evaluations," *Journal of Marketing Research*, 28 (3), 307–319.
- Dowling, Grahame R. and Mark Uncles (1997), "Do Customer Loyalty Programs Really Work?," *Sloan Management Review*, 38, 71–82.

- Duke, Kristen E., Kelly Goldsmith, and On Amir (2018), “Is the Preference for Certainty Always so Certain?,” *Journal of the Association for Consumer Research*, 3 (1), 63–80.
- Dutta, Sujay, Abhijit Guha, Abhijit Biswas, and Dhruv Grewal (2019), “Can Attempts to Delight Customers with Surprise Gains Boomerang? A Test Using Low-Price Guarantees,” *Journal of the Academy of Marketing Science* (3), 417–437.
- Einhorn, Hillel J. and Robin M. Hogarth (1985), “A Contrast/Surprise Model for Updating Beliefs,” *Working Paper*.
- Ekman, Paul, Robert W. Levenson, and Wallace V. Friesen (1983), “Autonomic Nervous System Activity Distinguishes Among Emotions,” *Science*, 221 (4616), 1208–1210.
- Elmachtoub, Adam N. and Michael L. Hamilton (2017), “The Power of Opaque Products in Pricing,” *SSRN Electronic Journal*.
- Elmachtoub, Adam N. and Yehua Wei (2015), “Retailing with Opaque Products,” *Unpublished manuscript*.
- Emmerich, Nadine (2019), “Wohin der Zufall führt - Blind Booking ist Reisen mit Nervenkitzel,” (accessed June 16, 2019), [available at <https://www.n-tv.de/leben/Blind-Booking-ist-Reisen-mit-Nervenkitzel-article20877785.html>].
- Entega (2014), *Internal Document*.
- Erdem, Tülin, Michael P. Keane, and Baohong Sun (2008), “A Dynamic Model of Brand Choice When Price and Advertising Signal Product Quality,” *Marketing Science*, 27 (6), 1111–1125.
- Expedia (2018), “Expedia Group Reports Second Quarter 2018 Results,” (accessed June 18, 2019), [available at <https://ir.expediagroup.com/static-files/b6762b9b-2d5c-4da6-986a-e881debc633d>].
- Fan, Linying and Yuwei Jiang (2018), “Don’t Surprise Me. How Social Relationships Shape Consumers’ Attitudes Toward Probabilistic Selling,” *Journal of the Association for Consumer Research*, 3 (3), 440–450.
- Fay, Scott (2008), “Selling an Opaque Product Through an Intermediary. The Case of Disguising One's Product,” *Journal of Retailing*, 84 (1), 59–75.

- Fay, Scott and Jinhong Xie (2008), "Probabilistic Goods. A Creative Way of Selling Products and Services," *Marketing Science*, 27 (4), 674–690.
- (2010), "The Economics of Buyer Uncertainty. Advance Selling Vs. Probabilistic Selling," *Marketing Science*, 29 (6), 1040–1057.
- (2015), "Timing of Product Allocation. Using Probabilistic Selling to Enhance Inventory Management," *Management Science*, 61 (2), 474–784.
- Fay, Scott, Jinhong Xie, and Cong Feng (2015), "The Effect of Probabilistic Selling on the Optimal Product Mix," *Journal of Retailing*, 91 (3), 451–467.
- Fiore, Andrew T., Coye Cheshire, Lindsay Shaw Taylor, and G. A. Mendelsohn (2014), "Incentives to Participate in Online Research: An Experimental Examination of "Surprise" Incentives," In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. New York, NY: Assoc. for Computing Machinery, 3433–3442.
- Fischer, Gregory W., Mary F. Luce, and Jianmin Jia (2000), "Attribute Conflict and Preference Uncertainty. Effects on Judgment Time and Error," *Management Science*, 46 (1), 88–103.
- Fitzsimons, Gavan J. (2000), "Consumer Response to Stockouts," *Journal of Consumer Research*, 27 (2), 249–266.
- Fitzsimons, Gavan J., Eric A. Greenleaf, and Donald R. Lehmann (1997), "Decision and Consumption Satisfaction. Implications for Channel Relations," *Marketing Studies Center Working Paper Series*, 313.
- Folkes, Valerie S. (1984), "Consumer Reactions to Product Failure. An Attributional Approach," *Journal of Consumer Research*, 10 (4), 398.
- Foubert, Bram, Els Breugelmans, Karen Gedenk, and Charlotte Rolef (2018), "Something Free or Something Off? A Comparative Study of the Purchase Effects of Premiums and Price Cuts," *Journal of Retailing*, 94 (1), 5–20.
- Friestad, Marian and Peter Wright (1994), "The Persuasion Knowledge Model. How People Cope with Persuasion Attempts," *Journal of Consumer Research*, 21 (1), 1–31.
- Gallego, Guillermo and Robert Phillips (2004), "Revenue Management of Flexible Products," *Manufacturing & Service Operations Management*, 6 (4), 321–337.

- Geng, Xin (2016), “Opaque Selling in Congested Systems,” *Operations Research Letters*, 44 (6), 737–741.
- Gigerenzer, Gerd and Wolfgang Gaissmaier (2011), “Heuristic Decision Making,” *Annual Review of Psychology*, 62, 451–482.
- Gneezy, Ayelet, Uri Gneezy, and Dominique O. Lauga (2014), “A Reference-Dependent Model of the Price–Quality Heuristic,” *Journal of Marketing Research*, 51 (2), 153–164.
- Goldsmith, Kelly and On Amir (2010), “Can Uncertainty Improve Promotions?,” *Journal of Marketing Research*, 47 (6), 1070–1077.
- Gönsch, Jochen (2020), “How Much to Tell Your Customer?—A Survey of Three Perspectives on Selling Strategies with Incompletely Specified Products,” *European Journal of Operational Research*, 280 (3), 793–817.
- Gönsch, Jochen and Claudius Steinhardt (2013), “Using Dynamic Programming Decomposition for Revenue Management with Opaque Products,” *Business Research*, 6 (1), 94–115.
- Gorn, Gerald J., Marvin E. Goldberg, and Kunal Basu (1993), “Mood, Awareness, and Product Evaluation,” *Journal of Consumer Psychology*, 2 (3), 237–256.
- Granados, Nelson, Kunsoo Han, and Dan Zhang (2018), “Demand and Revenue Impacts of an Opaque Channel. Evidence from the Airline Industry,” *Production and Operations Management*, 27 (11), 2010–2024.
- Gruber, Matthias J., Bernard D. Gelman, and Charan Ranganath (2014), “States of Curiosity Modulate Hippocampus-Dependent Learning via the Dopaminergic Circuit,” *Neuron*, 84 (2), 486–496.
- Gupta, Aditya, Meike Eilert, and James W. Gentry (2018), “Can I Surprise Myself? A Conceptual Framework of Surprise Self-Gifting Among Consumers,” *Journal of Retailing and Consumer Services*, In Press.
- Hart, Kendra, Mirand R. Goode, and Matthew Thomson (2011), “Say No More! Experiential Consumption and the Spoiler Effect of Positive Word of Mouth,” *NA - Advances in Consumer Research*, 39, 846–847.

- Hawaii State Public Library (2019), "Blind Date with a Book," (accessed June 17, 2019), [available at <https://www.librarieshawaii.org/event/blind-date-with-a-book-4/>].
- Hayes, Andrew F. (2013), *Introduction to Mediation, Moderation, and Conditional Process Analysis*. Guilford, New York.
- Heath, Timothy B., Subimal Chatterjee, and Karen R. France (1995), "Mental Accounting and Changes in Price. The Frame Dependence of Reference Dependence," *Journal of Consumer Research*, 22 (1), 90–97.
- Heilman, Carrie M., Kent Nakamoto, and Ambar G. Rao (2002), "Pleasant Surprises: Consumer Response to Unexpected in-Store Coupons," *Journal of Marketing Research*, 39 (2), 242–252.
- Hill, Krista M., Paul W. Fombelle, and Nancy J. Sirianni (2016), "Shopping Under the Influence of Curiosity. How Retailers Use Mystery to Drive Purchase Motivation," *Journal of Business Research*, 69 (3), 1028–1034.
- Hoch, Stephen J., Xavier Drèze, and Mary E. Purk (2018), "EDLP, Hi-Lo, and Margin Arithmetic," *Journal of Marketing*, 58 (4), 16–27.
- Holbrook, Morris B. (1999), *Consumer Value. A Framework for Analysis and Research*: Psychology Press.
- Holbrook, Morris B. and Rajeev Batra (1987), "Toward a Standardized Emotional Profile (SEP) Useful in Measuring Responses to the Nonverbal Components of Advertising," *Nonverbal Communication in Advertising*, 95–109.
- Homburg, Christian, Wayne D. Hoyer, and Nicole Koschate (2005), "Customers' Reactions to Price Increases. Do Customer Satisfaction and Perceived Motive Fairness Matter?," *Journal of the Academy of Marketing Science*, 33 (1), 36–49.
- Homburg, Christian, Nicole Koschate, and Dirk Totzek (2010), "How Price Increases Affect Future Purchases. The Role of Mental Budgeting, Income, and Framing," *Psychology and Marketing*, 27 (1), 36–53.
- Horowitz, Joel L. and Jordan J. Louviere (1995), "What Is the Role of Consideration Sets in Choice Modeling?," *International Journal of Research in Marketing*, 12 (1), 39–54.

- Horstmann, Gernot and Arvid Herwig (2015), "Surprise Attracts the Eyes and Binds the Gaze," *Psychonomic Bulletin & Review*, 22 (3), 743–749.
- Hsee, Christopher K. (1996), "The Evaluability Hypothesis. An Explanation for Preference Reversals Between Joint and Separate Evaluations of Alternatives," *Organizational Behavior and Human Decision Processes*, 67 (3), 247–257.
- Huang, Tingliang and Yimin Yu (2014), "Sell Probabilistic Goods? A Behavioral Explanation for Opaque Selling," *Marketing Science*, 33 (5), 743–759.
- Huang, Wei-Jue, Chun-Chu Chen, and Yee M. Lai (2018), "Five-Star Quality at Three-Star Prices? Opaque Booking and Hotel Service Expectations," *Journal of Hospitality Marketing & Management*, 27 (7), 833–854.
- Huber, Joel, John W. Payne, and Christopher Puto (1982), "Adding Asymmetrically Dominated Alternatives. Violations of Regularity and the Similarity Hypothesis," *Journal of Consumer Research*, 9 (1), 90–98.
- Huber, Joel, John W. Payne, and Christopher P. Puto (2014), "Let's Be Honest About the Attraction Effect," *Journal of Marketing Research*, 51 (4), 520–525.
- Hutter, Katharina and Stefan Hoffmann (2014), "Surprise, Surprise. Ambient Media as Promotion Tool for Retailers," *Journal of Retailing*, 90 (1), 93–110.
- Hwang, YooHee and Anna S. Mattila (2017), "Is It My Luck or Loyalty? The Role of Culture on Customer Preferences for Loyalty Reward Types," *Journal of Travel Research*, 57 (6), 769–778.
- Itti, Laurent and Pierre Baldi (2009), "Bayesian Surprise Attracts Human Attention," *Vision research*, 49 (10), 1295–1306.
- Janakiraman, Narayan, Robert J. Meyer, and Andrea C. Morales (2006), "Spillover Effects. How Consumers Respond to Unexpected Changes in Price and Quality," *Journal of Consumer Research*, 33 (3), 361–369.
- Jerath, Kinshuk, Serguei Netessine, and Senthil K. Veeraraghavan (2009), "Selling to Strategic Customers. Opaque Selling Strategies," In *Consumer-Driven Demand and Operations Management Models. International Series in Operations Research & Management Science*, Vol. 131, Christopher S. Tang and Serguei Netessine, eds. Boston, MA: Springer-Verlag US, 253–300.

- (2010), “Revenue Management with Strategic Customers. Last-Minute Selling and Opaque Selling,” *Management Science*, 56 (3), 430–448.
- Jiang, Yabing (2007), “Price Discrimination with Opaque Products,” *Journal of Revenue & Pricing Management*, 6 (2), 118–134.
- Jobber, David, John Saunders, and Vince-Wayne Mitchell (2004), “Prepaid Monetary Incentive Effects on Mail Survey Response,” *Journal of Business Research*, 57 (1), 21–25.
- Kahn, Barbara E. and Rebecca K. Ratner (2005), “Variety for the Sake of Variety? Diversification Motives in Consumer Choice,” In *Inside Consumption. Consumer Motives, Goals, and Desires*, Srinivasan Ratneshwar and David G. Mick, eds. London: Routledge, 102–121.
- Kalwani, Manohar U. and Chi K. Yim (1992), “Consumer Price and Promotion Expectations. An Experimental Study,” *Journal of Marketing Research*, 29 (1), 90–100.
- Kamleitner, Bernadette, David R. Mandel, and Mandeep K. Dhami (2011), “Risky Discounts. Do People Prefer Them on a Per-Item or Per-Purchase Basis and Why?,” *Journal of Economic Psychology*, 32 (6), 951–961.
- Kanuk, Leslie and Conrad Berenson (1975), “Mail Surveys and Response Rates. A Literature Review,” *Journal of Marketing Research*, 12 (4), 440–453.
- Keh, Hean T. and Yih H. Lee (2006), “Do Reward Programs Build Loyalty for Services? The Moderating Effect of Satisfaction on Type and Timing of Rewards,” *Journal of Retailing*, 82 (2), 127–136.
- Ketelaar, Paul E., Jonathan van't Riet, Helge Thorbjørnsen, and Moniek Buijzen (2016), “Positive Uncertainty. The Benefit of the Doubt in Advertising,” *International Journal of Advertising*, 37 (2), 256–269.
- Kidd, Celeste and Benjamin Y. Hayden (2015), “The Psychology and Neuroscience of Curiosity,” *Neuron*, 88 (3), 449–460.
- Kim, Byung-Do, Mengze Shi, and Kannan Srinivasan (2001), “Reward Programs and Tacit Collusion,” *Marketing Science*, 20 (2), 99–120.
- Kim, Ju-Young, Martin Natter, and Martin Spann (2009), “Pay What You Want. A New Participative Pricing Mechanism,” *Journal of Marketing*, 73 (1), 44–58.

- Kim, Min G. and Anna S. Mattila (2010), “The Impact of Mood States and Surprise Cues on Satisfaction,” *International Journal of Hospitality Management*, 29 (3), 432–436.
- Kim, Youngsun S. and Melissa A. Baker (2019), “I Earn It, but They Just Get It. Loyalty Program Customer Reactions to Unearned Preferential Treatment in the Social Servicescape,” *Cornell Hospitality Quarterly*, 23, 1-14.
- Klingemann, Wiebke and Ju-Young Kim (2016), “Innovative Preisbildungsmechanismen,” In *Handbuch Dienstleistungsmanagement*, Hans Corsten and Stefan Roth, eds.: Vahlen, 715–731.
- (2019a), “Probably a Good Choice: How Probabilistic Decoy Goods Affect the Choice of Transparent Goods,” *Unpublished Manuscript*. Karlsruhe Institute of Technology (KIT).
- (2019b), “(Surp)Rise in Sales: Increasing Sales and Purchase Satisfaction Through Offering Opaque Goods,” *Unpublished Manuscript*. Karlsruhe Institute of Technology (KIT).
- Klingemann, Wiebke, Ju-Young Kim, Martin Natter, and Katharina Kaufmann (2019), “Framing Price Increase Communication: The Use of Reasons and Incentives,” *Unpublished Manuscript*. Karlsruhe Institute of Technology (KIT).
- Knobloch-Westerwick, Silvia and Caterina Keplinger (2006), “Mystery Appeal. Effects of Uncertainty and Resolution on the Enjoyment of Mystery,” *Media Psychology*, 8 (3), 193–212.
- Koford, Kenneth and Adrian E. Tschoegl (1998), “The Market Value of Rarity,” *Journal of Economic Behavior & Organization*, 34 (3), 445–457.
- Koman, Tess (2018), “Amazon Is Giving Away Tons of Free Gadgets Next Week—Here's How to Find Them,” (accessed June 17, 2019), [available at <https://www.delish.com/food-news/a25440258/amazon-whole-foods-lockers/>].
- Kovacheva, Aleksandra, Hristina Nikolova, and Cait P. Lambertson (2017), “Unpacking the Surprise Box. How Loss of Control Decreases Men's Preference for Surprise Offerings,” *Working Paper*.
- (2019), “Will You Buy a Surprise? Gender Differences in the Purchase of Surprise Offerings,” *SSRN Electronic Journal*.

- Kreuzer Consulting (2013), "Vertriebskanalstudie Energie 2013. Marktanteile der Vertriebskanäle und vertriebsrelevante Prozesse beim Energieversorgerwechsel," [available at <https://www.kreuzer-consulting.com/energy-services/reports/vertriebskanalstudie-energie.html>].
- Kurtz, Jaime L., Timothy D. Wilson, and Daniel T. Gilbert (2007), "Quantity Versus Uncertainty. When Winning One Prize Is Better Than Winning Two," *Journal of Experimental Social Psychology*, 43 (6), 979–985.
- Laran, Juliano and Michael Tsiras (2013), "An Investigation of the Effectiveness of Uncertainty in Marketing Promotions Involving Free Gifts," *Journal of Marketing*, 77 (2), 112–123.
- Lee, Byung-Kwan and Wei-Na Lee (2004), "The Effect of Information Overload on Consumer Choice Quality in an Online Environment," *Psychology and Marketing*, 21 (3), 159–183.
- Lee, Yih H. and Cheng Qiu (2009), "When Uncertainty Brings Pleasure. The Role of Prospect Imageability and Mental Imagery," *Journal of Consumer Research*, 36 (4), 624–633.
- Lindgreen, Adam and Joelle Vanhamme (2003), "Viral Marketing: The Use of Surprise," In *Advances in Electronic Marketing*, Irvine Clarke and Theresa B. Flaherty, eds. Hershey, PA: Idea Group Publishing, 122–138.
- Loewenstein, George (1987), "Anticipation and the Valuation of Delayed Consumption," *The Economic Journal*, 97 (387), 666–684.
- (1994), "The Psychology of Curiosity: A Review and Reinterpretation," *Psychological Bulletin*, 116 (1), 75–98.
- Lorini, Emiliano and Cristiano Castelfranchi (2007), "The Cognitive Structure of Surprise. Looking for Basic Principles," *Topoi*, 26 (1), 133–149.
- Lynn, Michael (1989), "Scarcity Effects on Desirability. Mediated by Assumed Expensiveness?," *Journal of Economic Psychology*, 10 (2), 257–274.
- (1991), "Scarcity Effects on Value. A Quantitative Review of the Commodity Theory Literature," *Psychology and Marketing*, 8 (1), 43–57.
- Lynn, Michael and Paulette Bogert (1996), "The Effect of Scarcity on Anticipated Price Appreciation," *Journal of Applied Social Psychology*, 26 (22), 1978–1984.

- Maciej, Martin (2017), "Sind eure Ü-Ei-Figuren wertvoll? Ü-Ei Katalog online," (accessed July 15, 2019), [available at <https://web.archive.org/web/20190715135818/https://www.giga.de/downloads/ue-ei-manager/specials/sind-meine-ue-ei-figuren-wertvoll-ue-ei-katalog-online/>].
- Maner, Jon K. and Mary A. Gerend (2007), "Motivationally Selective Risk Judgments. Do Fear and Curiosity Boost the Boons or the Banes?," *Organizational Behavior and Human Decision Processes*, 103 (2), 256–267.
- Mao, Zhaofang, Wei Liu, and Bo Feng (2019), "Opaque Distribution Channels for Service Providers with Asymmetric Capacities. Posted-Price Mechanisms," *International Journal of Production Economics*, 215, 112–120.
- Marvin, Caroline B. and Daphna Shohamy (2016), "Curiosity and Reward. Valence Predicts Choice and Information Prediction Errors Enhance Learning," *Journal of Experimental Psychology: General*, 145 (3), 266–272.
- Mazar, Nina, Kristina Shampanier, and Dan Ariely (2016), "When Retailing and Las Vegas Meet: Probabilistic Free Price Promotions," *Management Science*, 63 (1), 250–266.
- Mellers, Barbara, Katrina Fincher, Caitlin Drummond, and Michelle Bigony (2013), "Surprise. A Belief or an Emotion?," In *Decision Making. Neural and Behavioural Approaches. Progress in brain research*, Vol. 202, Narayanan Srinivasan and V. S. C. Pammi, eds. Amsterdam, Boston: Elsevier, 3–19.
- Mellers, Barbara, Alan Schwartz, and Ilana Ritov (1999), "Emotion-Based Choice," *Journal of Experimental Psychology: General*, 128 (3), 332–345.
- Meyer, Wulf-Uwe, Michael Niepel, Udo Rudolph, and Achim Schützwohl (1991), "An Experimental Analysis of Surprise," *Cognition & Emotion*, 5 (4), 295–311.
- Montaner, Teresa, Leslie de Chernatony, and Isabel Buil (2011), "Consumer Response to Gift Promotions," *Journal of Product & Brand Management*, 20 (2), 101–110.
- Morales, Andrea C. (2005), "Giving Firms an "E" for Effort. Consumer Responses to High-Effort Firms," *Journal of Consumer Research*, 31 (4), 806–812.
- Nail, Jim (2007), "Visibility Versus Surprise. Which Drives the Greatest Discussion of Super Bowl Advertisements?," *Journal of Advertising Research*, 47 (4), 412–419.

- Noordewier, Marret K. and Seger M. Breugelmans (2013), “On the Valence of Surprise,” *Cognition & Emotion*, 27 (7), 1326–1334.
- Noordewier, Marret K., Sascha Topolinski, and Eric van Dijk (2016), “The Temporal Dynamics of Surprise,” *Social and Personality Psychology Compass*, 10 (3), 136–149.
- Noseworthy, Theodore J., Fabrizio Di Muro, and Kyle B. Murray (2014), “The Role of Arousal in Congruity-Based Product Evaluation,” *Journal of Consumer Research*, 41 (4), 1108–1126.
- Nunes, Joseph C. and C. W. Park (2018), “Incommensurate Resources. Not Just More of the Same,” *Journal of Marketing Research*, 40 (1), 26–38.
- Nuryakin, Chaikal and Alistair Munro (2019), “Experiments on Lotteries for Shrouded and Bundled Goods. Investigating the Economics of Fukubukuro,” *The Japanese Economic Review*, 70 (2), 168–188.
- Oliver, Richard L., Roland T. Rust, and Sajeev Varki (1997), “Customer Delight. Foundations, Findings, and Managerial Insight,” *Journal of Retailing*, 73 (3), 311–336.
- Oliver, Richard L. and Russell S. Winer (1987), “A Framework for the Formation and Structure of Consumer Expectations. Review and Propositions,” *Journal of Economic Psychology*, 8 (4), 469–499.
- PackUpGo (2018), “Pack up + Go: How It Works,” (accessed October 19, 2018), [available at <https://www.packupgo.com/>].
- Parker, Jeffrey R. and Donald R. Lehmann (2011), “When Shelf-Based Scarcity Impacts Consumer Preferences,” *Journal of Retailing*, 87 (2), 142–155.
- Pick, Doreén and Stephan Zielke (2015), “How Electricity Providers Communicate Price Increases – a Qualitative Analysis of Notification Letters,” *Energy Policy*, 86, 303–314.
- Post, David (2010), “Variable Opaque Products in the Airline Industry. A Tool to Fill the Gaps and Increase Revenues,” *Journal of Revenue & Pricing Management*, 9 (4), 292–299.
- Post, David and Martin Spann (2012), “Improving Airline Revenues with Variable Opaque Products. “Blind Booking” at Germanwings,” *Interfaces*, 42 (4), 329–338.

- Premazzi, Katia, Sandro Castaldo, Monica Grosso, Pushkala Raman, Susan Brudvig, and Charles F. Hofacker (2010), "Customer Information Sharing with E-Vendors. The Roles of Incentives and Trust," *International Journal of Electronic Commerce*, 14 (3), 63–91.
- Prendergast, Gerard P. and Edmund R. Thompson (2008), "Sales Promotion Strategies and Belief in Luck," *Psychology and Marketing*, 25 (11), 1043–1062.
- Rao, Akshay R. and Kent B. Monroe (1988), "The Moderating Effect of Prior Knowledge on Cue Utilization in Product Evaluations," *Journal of Consumer Research*, 15 (2), 253–264.
- (1989), "The Effect of Price, Brand Name, and Store Name on Buyers' Perceptions of Product Quality. An Integrative Review," *Journal of Marketing Research*, 26 (3), 351–357.
- Rao, Priya (2018), "Ipsy Doubles down on Subscription Model with New Glam Bag Plus Service – Glossy," (accessed June 17, 2019), [available at <https://www.glossy.co/beauty/ipsy-doubles-down-on-subscription-model-with-new-glam-bag-plus-service>].
- Ren, Hang and Tingliang Huang (2017), "Opaque Selling and Last-Minute Selling. Revenue Management in Vertically Differentiated Markets," *SSRN Electronic Journal*.
- Rey, Jason D. (2016), "Birchbox's Investors Are Giving the Startup a \$15 Million Lifeline," (accessed October 31, 2018), [available at <http://www.recode.net/2016/8/2/12305934/birchbox-15-million-funding-inside-round>].
- Rice, Dan H., Scott A. Fay, and Jinhong Xie (2014), "Probabilistic Selling Vs. Markdown Selling. Price Discrimination and Management of Demand Uncertainty in Retailing," *International Journal of Research in Marketing*, 31 (2), 147–155.
- Roehm, Michelle L., Ellen B. Pullins, and Harper A. Roehm (2018), "Designing Loyalty-Building Programs for Packaged Goods Brands," *Journal of Marketing Research*, 39 (2), 202–213.
- Rooderkerk, Robert P., Harald J. van Heerde, and Tammo H.A. Bijmolt (2011), "Incorporating Context Effects into a Choice Model," *Journal of Marketing Research*, 48 (4), 767–780.

- Rothschild, Michael L. and William C. Gaidis (2018), "Behavioral Learning Theory. Its Relevance to Marketing and Promotions," *Journal of Marketing*, 45 (2), 70–78.
- Ruan, Bowen, Christopher K. Hsee, and Zoe Y. Lu (2018), "The Teasing Effect. An Underappreciated Benefit of Creating and Resolving an Uncertainty," *Journal of Marketing Research*, 55 (4), 556–570.
- Scarpi, Daniele, Gabriele Pizzi, and Marco Visentin (2014), "Shopping for Fun or Shopping to Buy. Is It Different Online and Offline?," *Journal of Retailing and Consumer Services*, 21 (3), 258–267.
- Schumacher, Florentin (2019), "Blind Booking. Das ungewisse Etwas," (accessed June 18, 2019), [available at <https://www.tagesspiegel.de/gesellschaft/blind-booking-das-ungewisse-etwas/24046440.html>].
- Sethuraman, Raj and Vivek Srinivasan (2002), "The Asymmetric Share Effect. An Empirical Generalization on Cross-Price Effects," *Journal of Marketing Research*, 39 (3), 379–386.
- Shah, Anuj K. and Daniel M. Oppenheimer (2008), "Heuristics Made Easy. An Effort-Reduction Framework," *Psychological Bulletin*, 134 (2), 207–222.
- Shapiro, Dmitry and Xianwen Shi (2008), "Market Segmentation: The Role of Opaque Travel Agencies," *Journal of Economics & Management Strategy*, 17 (4), 803–837.
- Shen, Luxi, Ayelet Fishbach, and Christopher K. Hsee (2015), "The Motivating-Uncertainty Effect. Uncertainty Increases Resource Investment in the Process of Reward Pursuit," *Journal of Consumer Research*, 41 (5), 1301–1315.
- Shen, Luxi, Christopher K. Hsee, and Joachim H. Talloen (2018), "The Fun and Function of Uncertainty. Uncertain Incentives Reinforce Repetition Decisions," *Journal of Consumer Research*, 46 (1), 69–81.
- Shepperd, James A. and James K. McNulty (2002), "The Affective Consequences of Expected and Unexpected Outcomes," *Psychological Science*, 13 (1), 85–88.
- Simonson, Itamar (1989), "Choice Based on Reasons. The Case of Attraction and Compromise Effects," *Journal of Consumer Research*, 16 (2), 158–174.
- Simonson, Itamar, Ziv Carmon, and Suzanne O'Curry (1994), "Experimental Evidence on the Negative Effect of Product Features and Sales Promotions on Brand Choice," *Marketing Science*, 13 (1), 23–40.

- Sivakumar, K. and S. P. Raj (1997), "Quality Tier Competition. How Price Change Influences Brand Choice and Category Choice," *Journal of Marketing*, 61 (3), 71–84.
- Soman, Dilip and Amar Cheema (2001), "The Effect of Windfall Gains on the Sunk-Cost Effect," *Marketing Letters*, 12 (1), 51–62.
- Statista (2016), "Stromkunden und –anbieter 2016: Wer wählt wen warum?," (accessed July 11, 2019), [available at <https://web.archive.org/web/20190710221852/https://de.statista.com/infografik/6969/statista-studie-stromkunden-stromanbieter-2016/>].
- Stiensmeier-Pelster, Joachim, Alice Martini, and Rainer Reisenzein (1995), "The Role of Surprise in the Attribution Process," *Cognition & Emotion*, 9 (1), 5–31.
- Sviokla, John (2003), "Value Poaching," *Across the Board*, 40 (2), 11–12.
- Swisscom (2018), *Price Increase Letter (August 2018)* (accessed July 9, 2019), [available at <https://web.archive.org/web/20190709180044/https://community.swisscom.ch/t5/inOne/Preis%C3%A4nderungen-per-Oktober/td-p/543802/page/3>].
- Teigen, Karl H. and Gideon Keren (2003), "Surprises. Low Probabilities or High Contrasts?," *Cognition*, 87 (2), 55–71.
- Thoma, Marius (2017) (Supervisor: Klingemann, Wiebke), "Motive für den Kauf probabilistischer Güter," *Master Thesis*, IISM, Karlsruhe Institute of Technology.
- Tsiros, Michael and Vikas Mittal (2000), "Regret. A Model of Its Antecedents and Consequences in Consumer Decision Making," *Journal of Consumer Research*, 26 (4), 401–417.
- Tversky, Amos (1972), "Elimination by Aspects. A Theory of Choice," *Psychological review*, 79 (4), 281–299.
- Urech, Marcel (2015), "Nach Preiserhöhung: UPC Cablecom verliert Kunden," (accessed July 11, 2019), [available at <https://web.archive.org/web/20190711130523/https://www.netzwoche.ch/news/2015-11-06/nach-preiserhoehung-upc-cablecom-verliert-kunden>].
- Vaidyanathan, Rajiv and Praveen Aggarwal (2003), "Who Is the Fairest of Them All? An Attributional Approach to Price Fairness Perceptions," *Journal of Business Research*, 56 (6), 453–463.

- Valenzuela, Ana, Barbara Mellers, and Judi Strebels (2010), "Pleasurable Surprises. A Cross-Cultural Study of Consumer Responses to Unexpected Incentives," *Journal of Consumer Research*, 36 (5), 792–805.
- van Dijk, Eric and Marcel Zeelenberg (2007), "When Curiosity Killed Regret. Avoiding or Seeking the Unknown in Decision-Making Under Uncertainty," *Journal of Experimental Social Psychology*, 43 (4), 656–662.
- van Herpen, Erica, Rik Pieters, and Marcel Zeelenberg (2009), "When Demand Accelerates Demand. Trailing the Bandwagon," *Journal of Consumer Psychology*, 19 (3), 302–312.
- Vanhamme, Joelle and Dirk Snelders (2001), "The Role of Surprise in Satisfaction Judgements," *Journal of Consumer Satisfaction, Dissatisfaction and Complaining Behavior*, 14, 27–45.
- Vanhamme, Joëlle and Cees de Bont (2005), "'Surprise Gift' Purchases: Customer Insights from the Small Electrical Appliances Market," *Journal of Retailing*, 84 (3), 354–369.
- Wakefield, Kirk L. and J. J. Inman (2003), "Situational Price Sensitivity. The Role of Consumption Occasion, Social Context and Income," *Journal of Retailing*, 79 (4), 199–212.
- Weinberg, Peter and Wolfgang Gottwald (1982), "Impulsive Consumer Buying as a Result of Emotions," *Journal of Business Research*, 10 (1), 43–57.
- Westbrook, Robert A. and Richard L. Oliver (1991), "The Dimensionality of Consumption Emotion Patterns and Consumer Satisfaction," *Journal of Consumer Research*, 18 (1), 84–91.
- Whitchurch, Erin R., Timothy D. Wilson, and Daniel T. Gilbert (2011), "'He Loves Me, He Loves Me Not...' Uncertainty Can Increase Romantic Attraction," *Psychological Science*, 22 (2), 172–175.
- Wilson, Timothy D., David B. Centerbar, Deborah A. Kermer, and Daniel T. Gilbert (2005), "The Pleasures of Uncertainty: Prolonging Positive Moods in Ways People Do Not Anticipate," *Journal of Personality and Social Psychology*, 88 (1), 5–21.
- Wolfenbarger, Mary and Mary C. Gilly (2001), "Shopping Online for Freedom, Control, and Fun," *California Management Review*, 43 (2), 34–55.

- Woltman Elpers, Josephine L. C. M., Ashesh Mukherjee, and Wayne D. Hoyer (2004), "Humor in Television Advertising. A Moment-to-Moment Analysis," *Journal of Consumer Research*, 31 (3), 592–598.
- Woo, Hongjoo and Bharath Ramkumar (2018), "Who Seeks a Surprise Box? Predictors of Consumers' Use of Fashion and Beauty Subscription-Based Online Services (SOS)," *Journal of Retailing and Consumer Services*, 41, 121–130.
- Wood, Stacy L. (2001), "Remote Purchase Environments. The Influence of Return Policy Leniency on Two-Stage Decision Processes," *Journal of Marketing Research*, 38 (2), 157–169.
- Wright, Peter (2002), "Marketplace Metacognition and Social Intelligence," *Journal of Consumer Research*, 28 (4), 677–682.
- Wu, Laurie, Anna S. Mattila, and Lydia Hanks (2015), "Investigating the Impact of Surprise Rewards on Consumer Responses," *International Journal of Hospitality Management*, 50, 27–35.
- Wu, Zhengping and Jianghua Wu (2015), "Price Discount and Capacity Planning Under Demand Postponement with Opaque Selling," *Decision Support Systems*, 76, 24–34.
- Xia, Lan, Monika Kukar-Kinney, and Kent B. Monroe (2010), "Effects of Consumers' Efforts on Price and Promotion Fairness Perceptions," *Journal of Retailing*, 86 (1), 1–10.
- Xia, Lan, Kent B. Monroe, and Jennifer L. Cox (2018), "The Price Is Unfair! A Conceptual Framework of Price Fairness Perceptions," *Journal of Marketing*, 68 (4), 1–15.
- Xiao, Yongbo and Jian Chen (2014), "Evaluating the Potential Effects from Probabilistic Selling of Similar Products," *Naval Research Logistics (NRL)*, 61 (8), 604–620.
- Xie, Xiaoqing, Chris K. Anderson, and Rohit Verma (2017), "Customer Preferences and Opaque Intermediaries," *Cornell Hospitality Quarterly*, 58 (4), 342–353.
- Xie, Xiaoqing K., Rohit Verma, and Chris K. Anderson (2016), "Demand Growth in Services. A Discrete Choice Analysis of Customer Preferences and Online Selling," *Decision Sciences*, 47 (3), 473–491.
- Xu, Xiaoya, Zhaotong Lian, Xin Li, and Pengfei Guo (2016), "A Hotelling Queue Model with Probabilistic Service," *Operations Research Letters*, 44 (5), 592–597.

- Yan, Dengfeng and A. V. Muthukrishnan (2014), “Killing Hope with Good Intentions. The Effects of Consolation Prizes on Preference for Lottery Promotions,” *Journal of Marketing Research*, 51 (2), 198–204.
- Yang, Yang, Yangjie Gu, and Jeff Galak (2016), “When It Could Have Been Worse, It Gets Better. How Favorable Uncertainty Resolution Slows Hedonic Adaptation,” *Journal of Consumer Research*, 6 (1), 747–768.
- Yang, Yingkui (2014), “Understanding Household Switching Behavior in the Retail Electricity Market,” *Energy Policy*, 69, 406–414.
- Yi, Youjae and Hoseong Jeon (2003), “Effects of Loyalty Programs on Value Perception, Program Loyalty, and Brand Loyalty,” *Journal of Customer Behaviour*, 31 (3), 229–240.
- Zhang, Y., A. Q. Huang, T. C.E. Cheng, S. Y. Wang, and V. Fernandez (2016), “Simulating the Demand Reshaping and Substitution Effects of Probabilistic Selling,” *International Journal of Simulation Modelling*, 15, 699–710.
- Zhang, Yi, Guowei Hua, Shouyang Wang, Juliang Zhang, and Vicenc Fernandez (2018), “Managing Demand Uncertainty. Probabilistic Selling Versus Inventory Substitution,” *International Journal of Production Economics*, 196, 56–67.
- Zhang, Zelin, Kissan Joseph, and Ramanathan Subramaniam (2015), “Probabilistic Selling in Quality-Differentiated Markets,” *Management Science*, 61 (8), 1959–1977.
- Zheng, Quan, Xiajun A. Pan, and Janice E. Carrillo (2019), “Probabilistic Selling for Vertically Differentiated Products with Salient Thinkers,” *Marketing Science*, 38 (3), 442–460.