The role of price affect in behavioral pricing research: Essays on the antecedents and consequences of consumers’ emotional responses to price information

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St. Gallen, November 22, 2007

The President:

Prof. Ernst Mohr, PhD
To my parents
Acknowledgements

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St. Gallen, November 2007

Klaus Peine
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Abstract

Behavioral pricing research is cognitively biased. Therefore, the research agenda for the present doctoral dissertation is to study the phenomenon of price affect, i.e. consumers’ emotional responses to price information. Results across four papers suggest that appraisal theory provides a parsimonious and versatile theoretical framework for studying price affect. It lends itself ideally to integrating price affect into the extant body of behavioral pricing research. Specifically, price affect is a two-dimensional construct that encompasses positive and negative emotional responses. Both dimensions of price affect are found to mediate the effect of sufficiently salient price information on consumer behavior. Consistent with the notion of cognitive appraisal, both normatively relevant and irrelevant price information exerts its causal influence on price affect through changes in price cognitions. Similarly, price affect mediates the effect of price cognitions on consumer behavior, which is in line with the idea of coping. Finally, price affect achieves incremental validity over and above price cognitions, suggesting that price affect is a standalone, previously overlooked predictor of consumer behavior. Overall, price information that provides consumers with a pleasant affective experience is positively related to company profits. Theoretical and practical implications are discussed.
Zusammenfassung

Die Behavioral Pricing Forschung hat sich bis dato vornehmlich mit kognitiven Phänenomenen befass. Aus diesem Grund untersucht die vorliegende Dissertation das Konstrukt Preisaffekt, d. h. emotionale Reaktionen von Konsumenten auf Preisinformatio
nen. Die Ergebnisse aus vier Beiträgen zeigen, dass die Theorie der kognitiven Bewertung (Appraisal Theory) ein vielseitig verwendbares theoretisches Gerüst für die Unter
t Preisaffekt den Einfluss von Preiskognitionen auf das Kon
sumentenverhalten. Dies deckt sich mit der Vorstellung, dass Veränderungen im Kon
sumentenverhalten der Bewältigung preisinduzierter Emotionen dienen. Ferner erzielt Preisaffekt bei der Erklärung des Konsumentenverhaltens inkrementelle Validität über Preiskognitionen. Dies bedeutet, dass Preisaffekt ein eigenständiger, zuvor übersehe
er Prädiktor des Konsumentenverhaltens ist. Insgesamt zeigen die vorliegenden Er
ggebnisse, dass Preisinformationen, die bei Konsumenten einen angenehmen emotiona
en Zustand erzeugen, positiv auf den Unternehmenserfolg wirken. Theoretische und praktische Implikationen werden diskutiert.
1 Introduction

1.1 The cognitive hegemony in behavioral pricing research

Behavioral pricing is a research field that deals with the psychology of consumer price perceptions and its economic implications. In an effort to overcome the apparent limitations of rational choice theory in explaining many economic outcomes, behavioral pricing research investigates how consumers perceive and process price information—and how they utilize price cues in forming price judgments and making product choices. For example, consumers are known to respond more favorably to partitioned prices, e.g. a selling price of € 90 plus € 10 for shipping and handling, than to a normatively equivalent lump-sum amount, i.e. € 100 (Morwit, Greenleaf and Johnson 1998, #21). Rational choice theory cannot explain why consumers would ever prefer one of two normatively equivalent price offers that are just framed differently. By contrast, behavioral pricing research is capable of accounting for such seemingly irrational consumer behavior, e.g. in terms of decision-makers’ limited information processing capacity.

Behavioral pricing research draws extensively on insights from cognitive psychology. It is therefore no surprise that a perusal of the behavioral pricing literature reveals a flagrant cognitive bias. The overwhelming majority of research in the field of behavioral pricing is concerned with price-related cognitive phenomena. These include, for example, price knowledge, price thresholds, reference prices, price-quality inferences, value-for-money judgments, price fairness perceptions, and mental accounting. At the same time, behavioral pricing scholars have paid only scant attention to the notion that price information may also trigger affective responses in consumers. This is particularly noteworthy because, in other areas of marketing (e.g., advertising research), the impact of emotions on consumer behavior is well-established (see Bagozzi, Gopinath and Nyer 1999, #1, for a synopsis). Moreover, consumers’ everyday shopping experience suggests that perceived changes in relative prices (e.g., price increases, rebates, or deviations from a reference price) may elicit feelings, albeit mild, of anger, happiness, sadness, or relief. This implies that studying consumers’ emotional responses to price information, or price affect, represents a worthwhile research endeavor for three main reasons. First, incorporating price affect into future research may enable behavioral pricing scholars to provide a more detailed account of consumers’ processing of price

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1 For references cited in the introduction and the general discussion of the present doctoral dissertation, the reader is referred to the references of one of the four papers, in this case paper #2.
information. Second, price affect might help improve the prediction of consumer behavior beyond price cognitions (e.g., price fairness perceptions or value-for-money judgments). Third, developing a deeper understanding of which pieces of price information provide consumers with a more hedonic shopping (and consumption) experience could have important pricing implications.

In undertaking this research endeavor, the present work mainly builds on three papers that represent notable exceptions to the cognitive hegemony in the field of behavioral pricing. First, the research of O’Neill and Lambert (2001, #1) has revealed that price cognitions (e.g., price consciousness) and price-induced affective responses (e.g., enjoyment and surprise) jointly shape consumer reactions to prices. Yet, a shortcoming of this paper is that the authors failed to provide any theoretical explanation of their empirical findings. Moreover, O’Neill and Lambert only found a correlational, rather than causal, association between price cognitions and positive as well as neutral, rather than negative, emotions. Second, Suri, Manchanda and Kohli (2002, #1) have analyzed the effect of fixed vs. discounted pricing on consumers’ affective responses and product evaluations. Their experimental evidence suggests that fixed price arrangements (i.e., low price guarantees) are related to more positively valenced cognitions and higher levels of positive affect than a discounted price format (i.e., occasional rebates). However, the authors did not proceed to investigate the interrelationship between price information, consumers’ price-induced affective responses, price-related cognitions, and consumer behavior—even though these are crucial links from a consumer research perspective. Third, Honea and Dahl (2005, #1) have developed a promotion affect scale to measure consumers’ affective responses to promotion offers which, *inter alia*, include price promotions. Yet, the focus of their paper on promotions suggests that their work is relevant to price decreases rather than price increases. In addition, Honea and Dahl did not examine whether their hypothesized construct of promotion affect is complementary or redundant with consumers’ cognitive responses to promotion offers (e.g., value-for-money judgments). Still, the above three papers are valuable because they seem to suggest that prices may in fact elicit affective responses. In doing so, they set the stage for subsequent research addressing alternative conceptualizations and operationalizations as well as the incremental validity or mediating role of price affect.

### 1.2 Research questions

Taking the findings and limitations of the above three papers as a point of departure,
the agenda for the present doctoral dissertation is to provide answers to the following seven research questions:

(1) **What are the theoretical underpinnings of price affect?**
One of the goals of the present work is to explain why consumers respond emotionally to price information, i.e. to provide a theoretical account of consumers’ everyday shopping experience. A sound theoretical framework is a prerequisite for making falsifiable predictions as to when, and how, consumers will respond emotionally to price information across a variety of different pricing situations. In addition, it will enable behavioral pricing researchers to specify how consumers’ emotional responses to price information will shape their shopping behavior. Therefore, an appropriate theoretical model of price affect has to be explicit on both the antecedents and consequences of decision-makers’ affective responses. Appraisal theory (see, e.g., Lazarus 1991a, b, #1; Roseman, Spindel and Jose 1990, #1) meets these criteria. Therefore, in an effort to answer research question 1, appraisal theory is applied to the phenomenon of price affect.

(2) **How should price affect be measured?**
An important issue from both a theoretical and practical perspective is how to operationalize the construct of price affect. This is a worthwhile research question because the previous two studies explicitly addressing consumers’ emotional responses to price information (O’Neill and Lambert 2001, #1; Suri et al. 2002, #1) have merely found (i) an effect of price information and price cognitions on positive and neutral emotions and/or (ii) an effect of positive and neutral emotions on consumer behavior. At the same time, the promotion affect scale (Honea and Dahl 2005, #1) comprises both positive affect and negative affect. However, Honea and Dahl did not explicitly investigate how price information is related to these two basic categories of affect. Moreover, the two-factor theory of affect (see Mano 1991, #1; Watson and Tellegen 1985, #1) suggests that affect is a two-dimensional construct. Thus, one objective of the present doctoral dissertation is to determine whether price affect comprises both positive and negative emotional responses—and whether both dimensions are endowed with predictive validity. For example, if positive price affect and negative price affect were not only incrementally valid over and above price cognitions but also beyond each other, one would have to conclude that price affect is a two-dimensional, rather than one-
dimensional, construct.

(3) **What is the interplay between price information, price cognitions, price affect, and consumer behavior?**

Research question 3 is closely related to research question 1. Yet, whereas research question 1 is purely theoretical in nature, research question 3 addresses an empirical issue. That is, research question 3 is concerned with the appropriateness of appraisal theory in the context of consumers’ emotional responses to price information. Specifically, research question 3 asks whether cognitive appraisal (e.g., perceived price unfairness) mediates the effect of price information (e.g., a perceived price increase) on consumers’ emotional responses (e.g., lower levels of positive affect and higher levels of negative affect). Similarly, research question 3 raises the issue of whether these emotional responses, in turn, mediate the effect of cognitive appraisal on consumer behavior (e.g., lower purchase intent). Put differently, it asks whether changes in behavior reflect a consumer’s effort to cope with his or her emotions resulting from the cognitive appraisal of price information. Thus, if price cognitions were found to mediate the effect of (experimentally manipulated) price information on price affect, there would be reason to believe that price affect results indeed from consumers’ cognitive appraisal of price information. In a similar vein, if price affect were found to mediate the effect of price cognitions on consumer behavior, one would have to conclude that changes in behavior reflect a consumer’s effort to cope with his or her emotional responses resulting from the cognitive appraisal of price information.

(4) **Is price affect a valid construct?**

For price affect to be a valid construct, it has to meet two conditions. First, price affect has to be involved in consumers’ processing of price information. Put differently, affective responses should mediate the causal effect of price information on consumer behavior. Second, price affect has to predict consumer behavior in a theory-consistent manner and as a standalone factor, i.e., it has to be incrementally valid. Therefore, consumers’ affective responses to price information should improve the prediction of consumer behavior (e.g., purchase intent and positive word-of-mouth) beyond the cognitive constructs traditionally featured in behavioral pricing research (e.g., perceptions of price fairness or value). Otherwise, price affect would merely be redundant with price cognitions—and there would be little reason to bemoan the cognitive hegemony in
behavioral pricing research.

It should be noted that research question 4 addresses a different issue than research question 3. Demonstrating that price affect mediates the effect of price cognitions on consumer behavior does not automatically imply that price affect is also incrementally valid beyond price cognitions. Specifically, it is only when mediation is incomplete that price affect and price cognitions exert non-redundant effects on consumer behavior. By contrast, when mediation is complete, price affect and price cognitions exert redundant effects on consumer behavior because, in this instance, the direct effect of price cognitions on consumer behavior must be zero.

In a similar vein, a mediational framework based on appraisal theory is unfit to provide a valid answer to the question whether price affect mediates the causal effect of price information on consumer behavior. The reason is the following: In a mediational framework based on appraisal theory, the direct effects of price information on price affect will likely be attenuated by the inclusion of the mediating cognitive constructs. Analogously, the direct effects of price cognitions on consumer behavior will likely be attenuated by the inclusion of the mediating affective constructs. However, in a mediation analysis that examines whether both price cognitions and price affect are causally involved in the processing of price information, these direct effects represent indirect effects, i.e. the associations between independent variables and mediators as well as mediators and dependent variables, respectively. Mediation is not to be expected when one of these associations (i.e., one of the indirect effects) is weak. Thus, there is a priori reason to believe that a mediational framework based on appraisal theory will suggest that price affect is not causally involved in consumers’ processing of price information. As a consequence, a valid analysis of the generative mechanisms through which price information exerts its causal influence on consumer behavior requires a mediational framework other than that suggested by appraisal theory.

(5) Do consumers respond emotionally to both normatively relevant and irrelevant price information?

From a normative perspective, price information can either be relevant (e.g., a shift in relative prices such as a price increase) or irrelevant (e.g., partitioned prices; see Morwitz et al. 1998, #2). Rational choice theorists would probably not disagree with the notion that consumers react emotionally when “something is at stake” (e.g., in the case of a true price increase). However, they would certainly deny that consumers respond
emotionally when fundamental outcomes remain effectively unchanged (e.g., in the case of price partitioning). At the same time, the core tenet of appraisal theory is that emotional responses arise from the cognitive appraisal of an event rather than from the event itself: What counts is whether price information is relevant from a consumer perspective, not from a normative perspective. Thus, consumers can be expected to respond emotionally to both normatively relevant and irrelevant price information. Assessing whether consumers’ affective responses to normatively irrelevant price information are in line with appraisal theory hence makes for a particularly strong test of its explanatory power in the field of behavioral pricing.

(6) Does salience matter in consumers’ emotional responses to price information?

Research question 6 is a follow-up on research question 5. It addresses the issue of whether the distinction between normatively relevant and irrelevant price information is a meaningful one in studying price affect. In this regard, it is important to note that normatively relevant price information (e.g., a price increase) may be communicated to consumers without simultaneously communicating normatively irrelevant price information. By contrast, in most cases when normatively irrelevant price information (e.g., partitioned prices) is communicated, normatively relevant price information will also be conveyed (e.g., the underlying cost of a price offer involving partitioned prices). In this latter instance, normatively relevant price information can either be discriminating, suggesting that consumers rationally prefer one price offer to another, or non-discriminating, suggesting that consumers be rationally indifferent between two price offers.

When consumers respond emotionally to normatively irrelevant price information while normatively relevant price information is held constant (e.g., in the case of two partitioned price offers with the same underlying cost such as € 90 plus € 10 vs. € 100), one could make the following objection: Consumers’ emotional responses to normatively irrelevant price information are solely due to the fact that normatively relevant price information is non-discriminating. This implies that the effect of normatively irrelevant price information on consumer affect should vanish as soon as normatively relevant and truly discriminating price information is simultaneously available.

Yet, according to appraisal theory, it is not the relevance of price information from a normative standpoint but rather from a consumer perspective that determines
whether an emotional response will ensue. In a similar vein, myriad studies in behavioral pricing have shown that consumer behavior is biased by normatively irrelevant price information (e.g., external reference prices). This suggests that normatively irrelevant price information can be highly relevant from a consumer perspective. Consumers’ affective responses are hence expected to be driven by salient price information—irrespective of whether it is normatively relevant. More specifically, appraisal theory maintains that individuals will not respond emotionally to information unless they make a cognitive appraisal of that information (see, e.g., Roseman et al. 1990, #1). Yet, to make a cognitive appraisal, information must first be perceived. It follows that, for boundedly rational consumers, the likelihood of making a cognitive appraisal of a particular piece of price information is positively related to the salience of that piece of price information. Therefore, the higher the salience of a particular piece of price information—irrespective of whether it is normatively relevant or irrelevant—the greater is the likelihood that an emotional response will arise.

To answer research question 6, one has to create a situation in which (i) normatively relevant and irrelevant pieces of price information are independently manipulated, (ii) normatively relevant price information truly discriminates between marketing offers, and (iii) normatively irrelevant price information is much more salient to consumers than normatively relevant price information. Given this setup, if consumers were found to respond emotionally to normatively irrelevant, rather than relevant, price information, one would have to conclude that it is not the normative relevance but rather the salience of price information that drives consumers’ affective responses.

(7) What are the practical implications of the finding that consumers respond emotionally to price information?
Finally, the present work seeks to identify practical implications of the finding that consumers respond both cognitively and emotionally to price information.

1.3 Overview of papers
The present doctoral dissertation consists of four essays addressing the above, and related, issues. In turn, the underlying rationale for writing these papers and their main research focus are briefly described. Table 1 gives an overview of the four papers.
Paper #1: Getting a feel for price affect: A conceptual framework and empirical investigation of consumers’ emotional responses to price information

Paper #1, set in the airline industry, addresses research questions 1 thru 5 as well as 7. The main goal of this paper is to examine whether consumers respond emotionally to normatively relevant price information. Drawing on appraisal theory, i.e. a cognitive emotion theory (e.g., Roseman et al. 1990, #1), paper #1 provides a conceptual framework for studying the phenomenon of price affect.

Table 1. Overview of papers.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Paper #1</th>
<th>Paper #2</th>
<th>Paper #3</th>
<th>Paper #4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>relevant</td>
<td>(i) irrelevant, (ii) relevant (non-discriminating)</td>
<td>(i) irrelevant, (ii) relevant (truly discriminating)</td>
<td>(i) irrelevant, (ii) relevant (truly discriminating)</td>
</tr>
<tr>
<td>Type of Price Information from Normative Perspective</td>
<td>relative price level</td>
<td>gestalt characteristics of multi-dimensional prices</td>
<td>(i) effort-to-medium payoff, (ii) effort-to-outcome return</td>
<td>(i) effort-to-medium payoff, (ii) effort-to-outcome return</td>
</tr>
<tr>
<td>Independent Variable(s)</td>
<td>(i) effort-to-medium payoff, (ii) effort-to-outcome return</td>
<td>(i) 3 (medium advantage vs. medium equality vs. medium disadvantage)</td>
<td>(i) 3 (medium advantage vs. medium equality vs. medium disadvantage)</td>
<td>(i) 3 (medium advantage vs. medium equality vs. medium disadvantage)</td>
</tr>
<tr>
<td>Experimental Design</td>
<td>between subjects: 1 × 3 (medium advantage vs. medium equality vs. medium disadvantage)</td>
<td>within subjects: 1 × 2 (low vs. high price level)</td>
<td>between subjects: (i) improvement vs. status quo vs. deterioration</td>
<td>between subjects: (i) improvement vs. status quo vs. deterioration</td>
</tr>
<tr>
<td>Dependent Variables</td>
<td>perceived fairness, perceived value, positive and negative affect, positive word-of-mouth, purchase intent</td>
<td>perceived fairness, perceived value, positive and negative affect, positive word-of-mouth, purchase intent</td>
<td>likelihood of joining program, perceived program fairness, brand attitude, anticipated satisfaction, loyalty intentions, positive word-of-mouth</td>
<td>perceived value, perceived reward, positive and negative affect, likelihood of joining program, loyalty intentions</td>
</tr>
<tr>
<td>Subjects</td>
<td>consumers/ customers</td>
<td>consumers/ customers</td>
<td>customers</td>
<td>customers</td>
</tr>
<tr>
<td>Industry Focus</td>
<td>airline</td>
<td>automotive</td>
<td>skiing</td>
<td>skiing</td>
</tr>
</tbody>
</table>

On the empirical front, a price affect scale (PRIAS) consisting of two subscales, i.e. negative price affect and positive price affect, is derived. Moreover, this paper investigates the effect of a change in relative prices (i.e., a price increase) on consumers’ cognitive, affective, and behavioral responses. In doing so, a within-subjects design is
employed. Paper #1 is also concerned with the question whether price information exerts its causal influence on consumer behavior through changes in both price cognitions and price affect. Moreover, this paper examines whether price information (i.e., a price increase), price-induced emotions (i.e., negative price affect and positive price affect), price cognitions (i.e., perceived price fairness and perceived value), and consumer behavior (i.e., purchase intent and positive word-of-mouth) are related to each other as predicted by appraisal theory. In addition, paper #1 assesses the incremental validity of price affect over and above price cognitions—both jointly and independently. Finally, paper #1 seeks to ascertain whether the predictive importance of price affect may decrease as the absolute price level increases.

**Paper #2: The profile effect: Consumer preferences for gestalt characteristic of multi-dimensional prices**

Paper #2, set in the automotive sector, is relevant to research questions 3 thru 5 and 7. At the same time, it raises research question 6. The main purpose of this paper is to investigate whether consumers respond emotionally to normatively irrelevant price information. Based on the finding that decision-makers have a stable preference for improving sequences of outcomes (Loewenstein and Prelec 1993, #1), paper #2 examines consumers’ cognitive, affective, and behavioral responses to the gestalt characteristics of multi-dimensional prices (MDPs), i.e., sequences of monthly installments. Specifically, paper #2 investigates whether consumers prefer decreasing monthly installment (e.g., 40, 30, 20, 10) to constant (e.g., 25, 25, 25, 25) and increasing ones (e.g., 10, 20, 30, 40). In doing so, a between-subjects design is employed. Since normatively relevant price information (i.e., present value) is held constant in paper #2, consumers’ affective responses to different multi-dimensional price profiles are attributable to normatively irrelevant price information (i.e., gestalt characteristics).

In addition, paper #2 analyzes whether normatively irrelevant price information exerts its causal influence on consumer behavior through changes in both price cognitions and price affect. In an effort to test appraisal theory, this paper also investigates the interrelationship between price information (i.e., the gestalt characteristics of multi-dimensional prices), price affect (i.e., positive and negative emotional responses), price cognitions (i.e., perceived fairness and perceived value), and consumer behavior (i.e., purchase intent and positive word-of-mouth). Moreover, paper #2 seeks to identify individual difference variables (e.g., debt attitude) that moderate consum-
ers’ assessment of different patterns of monthly installments. Finally, paper #2 examines whether price affect improves the prediction of consumers’ behavioral responses to normatively irrelevant price information beyond price cognitions.

**Paper #3: Giving them what they want! Consumers’ susceptibility to the medium effect in loyalty programs**

Paper #3 is mainly relevant to research questions 5 and 6. In addition, it addresses a possible shortcoming of paper #2. The latter paper investigates consumers’ affective responses to normatively irrelevant price information (i.e., the gestalt characteristics of MDPs), holding normatively relevant price information (i.e., present value) constant. It is therefore conceivable that consumers’ emotional responses to normatively irrelevant price information are solely due to the fact that normatively relevant price information is non-discriminating (see research question 6). Put differently, when present value suggests that consumers be rationally indifferent between different finance offers, their affective responses might easily be biased by the gestalt characteristics of MDPs. By contrast, when normatively relevant price information (e.g., present value) suggests that one marketing offer be rationally preferred to another, consumers may no longer respond emotionally to normatively irrelevant price information (e.g., the gestalt characteristics of MDPs). Thus, as previously noted, the effect of normatively irrelevant price information on consumer affect should disappear as soon as normatively relevant and truly discriminating price information is simultaneously available.

The main objective of paper #3 is to identify a real-world situation in which (i) consumers encounter both normatively relevant and irrelevant price information, thus enabling independent manipulation of these two pieces of price information, (ii) normatively relevant price information is truly discriminating, suggesting that one marketing offer be rationally preferred to another, and (iii) normatively irrelevant price information is much more salient than normatively relevant price information.

Thus, paper #3, set in the skiing sector, investigates consumer responses to loyalty programs (LPs). The structure of LPs (i.e., effort → medium → reward) lends itself ideally to investigating the simultaneous effect of normatively relevant and irrelevant price information on consumer behavior. When consumers exert effort (e.g., by purchasing a service), they receive a medium (e.g., LP points) that can be accumulated and later be traded for a reward (e.g., a gift). Here, it is important to note that the different relationships between effort, medium, and reward contain price information.
Specifically, the relationship between effort and reward (i.e., effort-to-outcome return; e.g., having to purchase 15 flights to be eligible for a free flight) represents normatively relevant price information. It indicates the price of rewards, or fundamental outcomes, denominated in consumer effort. By contrast, the relationship between effort and medium (i.e., effort-to-medium payoff; e.g., receiving 120 LP points for every purchase of a service) represents normatively irrelevant price information. It denotes the price of a medium denominated in consumer effort. Specifically, effort-to-medium payoff alone is normatively relevant because consumers also need medium-to-outcome return to calculate effort-to-outcome return, i.e. normatively relevant price information. Previous research on the medium effect (e.g., Hsee, Yu, Zhang and Zhang 2003, #3) has found decision-makers to be particularly responsive to effort-to-medium payoff, while at the same time being negligent of effort-to-outcome return. Thus, the price of a medium denominated in consumer effort (i.e., normatively irrelevant price information) appears to be much more salient to decision-makers than the price of fundamental outcomes denominated in consumer effort (i.e., normatively relevant price information).

In manipulating effort-to-medium payoff and effort-to-outcome return independently and between subjects, paper #3 creates a situation in which one may study whether consumers respond to normatively irrelevant, yet highly salient, price information even though normatively relevant, yet much less salient, price information provides rational consumers with a sound basis for optimal decision-making. Specifically, paper #3 investigates whether consumers use the amount of LP points awarded per purchase (or visit) as a cue of program value—and whether they simultaneously neglect the funding rate of an LP. In addition, this paper seeks to identify individual difference variables (e.g. reward deprivation) that moderate the appeal of normatively irrelevant price information (i.e., effort-to-medium payoff) to consumers. However, rather than studying consumers’ affective responses directly, paper #3 examines dependent variables held to be closely related to consumer affect. These include perceived price fairness (Xia, Monroe and Cox 2004, #1) and satisfaction (Oliver 1999, #3), for example. In doing so, paper #3 sets the stage for paper #4.

Paper #4: Valuable, rewarding, and enjoyable: Consumer hedonics and the rationality of myopically maximizing media

Paper #4, also set in the skiing sector, avails itself of the findings of paper #3. They
suggest that consumers respond to normatively irrelevant, yet highly salient, price information (i.e., effort-to-medium payoff), while at the same time being negligent of normatively relevant, yet much less salient, price information (i.e., effort-to-outcome return). Paper #4 addresses research questions 3 thru 7. The setup of this paper is similar to that of paper #3 in that it is concerned with consumer responses to price information contained in the structure of LPs. Still, paper #4 differs from paper #3 in that it explicitly examines consumers’ affective responses to normatively relevant and irrelevant price information. Moreover, similar to paper #2, paper #4 studies whether normatively irrelevant price information (i.e., effort-to-medium payoff) exerts its causal influence on consumer behavior through changes in both price affect and price cognitions. In an attempt to test appraisal theory, paper #4 also investigates the interrelationship between normatively irrelevant price information (i.e., effort-to-medium payoff), price affect (i.e., positive and negative emotional responses), consumers’ cognitive responses (i.e., perceived value and perceived reward), and consumer behavior (i.e., likelihood of joining a given LP and loyalty intentions). Moreover, this paper seeks to identify individual difference variables (e.g., reward deprivation) that moderate consumers’ affective responses to normatively irrelevant price information (i.e., effort-to-medium payoff). Finally, paper #4 examines whether emotional responses to normatively irrelevant price information achieve incremental validity beyond price-induced cognitions in predicting consumer behavior.
2 Getting a feel for price affect: A conceptual framework and empirical investigation of consumers’ emotional responses to price information²

2.1 Abstract

Behavioral pricing research is cognitively biased. Therefore, the research agenda for this paper is to examine consumers’ emotional responses to price information, or price affect. A conceptual framework of price affect based on appraisal theory is proposed. Moreover, a psychometric measure of price affect capturing positive and negative emotions is derived. A field experiment involving $N = 1,533$ consumers reveals that a price increase leads to changes in price affect. Also, negative price affect is related to passive consumer behavior, while positive price affect is associated with proactive consumer behavior. Yet, a price increase reduces the importance of price affect in predicting consumer behavior. In addition, both price cognitions and price affect mediate the effect of a price increase on consumer behavior. Consistent with appraisal theory, a price increase exerts its causal influence on price affect through changes in price cognitions. Similarly, price affect mediates the effect of price cognitions on consumer behavior. Finally, price affect improves the prediction of consumer behavior beyond price cognitions. Results suggest that price affect is a standalone, previously overlooked predictor of consumer behavior. Implications are discussed.

2.2 Introduction

Perceived price changes—e.g., price increases, rebates, or deviations from a reference price—may elicit consumer feelings, albeit mild, of anger, happiness, sadness, or relief. Still, a perusal of the behavioral pricing literature reveals a flagrant cognitive bias. The overwhelming majority of research in behavioral pricing is concerned with cognitive price-related phenomena such as price thresholds, reference prices, price-quality inferences, value-for-money judgments, price fairness perceptions, and price knowledge, for example. The finding that behavioral pricing scholars have paid only scant attention to the construct of price affect is noteworthy for two reasons. First, in other areas of marketing (e.g., advertising research), the impact of emotions on consumer behavior is well-established (see Bagozzi et al. 1999 for a synopsis). Second, multi-

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² Co-authors: Mark Heitmann and Andreas Herrmann. Revision invited for resubmission at Psychology and Marketing. A shorter version of this paper has been presented at the 36th Annual Conference of the European Marketing Academy, Reykjavik/Iceland, 2007.
component models (e.g., Ajzen 2001; Bargh 2002; Hoch and Loewenstein 1991) suggest that affect and cognition influence behavior independently. Thus, the consideration of consumers’ emotional responses to price information may give behavioral pricing scholars an opportunity (i) to provide a more detailed account of consumers’ processing of price information and (ii) to improve the prediction of consumer behavior.

There are three noteworthy exceptions to the cognitive hegemony in behavioral pricing research. In the first, O’Neill and Lambert (2001) linked their price affect construct to various price-related cognitive measures. For example, they found surprise and enjoyment to act in tandem with involvement, price consciousness, and price-quality associations in shaping consumer reactions to prices. Yet, the authors have analyzed consumers’ assessments of stationary prices rather than their reactions to true price information, i.e. a perceived shift in relative prices. Nevertheless, the work of O’Neill and Lambert is valuable because it is the first to suggest that prices may elicit affective responses. In doing so, it sets the stage for subsequent research addressing alternative conceptualizations and operationalizations as well as the incremental validity or mediating role of price affect.

In a second such study, Suri et al. (2002) analyzed the effect of fixed vs. discounted pricing on consumers’ affective responses and product evaluations. Their experimental evidence suggests that fixed price arrangements (i.e., low price guarantees) are related to more positively valenced cognitions and higher levels of positive affect than a discounted price format (i.e., occasional rebates). Yet, the authors concentrated on retailers’ holistic price announcements (i.e., occasional variability vs. dependable stability) rather than on consumers’ perceptions of a change in relative prices. Also, Suri et al. did not establish the criterion validity of their affective constructs (e.g., happiness) in predicting consumer behavior.

In the third study, Honea and Dahl (2005) developed a promotion affect scale to measure consumers’ affective responses to sales promotion offers. These encompass, *inter alia*, price discounts. Yet, the focus on promotions suggests that their work is relevant to price decreases rather than price increases. Also, the authors define the construct of promotion affect very broadly in terms of emotions toward the overall encounter, the product, the seller, the price, and the self. Such conceptual breadth makes it difficult to trace affective reactions to price information. Finally, Honea and Dahl did not examine whether their hypothesized construct of promotion affect is complementary or redundant with promotion-induced cognitions (e.g., value-for-
money judgments) in predicting consumer behavior.

In sum, the notion of prices as a source of consumer affect is an under-researched topic in marketing. At the same time, psychological research on human behavior in general, and consumer decision-making in particular, has provided copious evidence that affect is an important determinant of behavior (e.g., Ajzen 2001; Andrade 2005; Bagozzi et al. 1999; Frijda 1986; Lazarus 1991a; Loewenstein, Weber, Hsee and Welch 2001). Thus, studying price affect more closely is worthwhile given its potential importance for explaining consumer behavior. For example, consumers facing budget constraints may anticipate price changes as a shift in their current level of welfare, or well-being, and thus experience joy or distress. Also, when reference prices and selling prices mismatch, consumers’ expectations are disconfirmed, which may give rise to liking, anger, or surprise. In a similar vein, individuals who infer their general happiness in life from their perceived economic resources may feel pride, shame, relief, or frustration over prices they can, or cannot, afford. Finally, consumers seeking fair economic exchange may experience contempt, anger, guilt, or liking—depending on their perception of being treated fairly, or unfairly, in terms of the prices requested (see Xia et al. 2004).

Given the dearth of research on price affect, the present paper addresses five issues. First, it proposes a conceptual framework of price affect based on appraisal theory. Second, a psychometric measure of price affect (i.e., the PRIAS) is derived. Third, it assesses the mechanics of price affect by examining the relationship between a change in relative prices (i.e., a price increase) and the direction of consumers’ affective responses. Fourth, this paper probes the relevance of the hypothesized construct of price affect by investigating both its predictive validity and mediating role in conjunction with price cognitions. Finally, it studies whether the interplay between price information, price cognitions, price affect, and consumer behavior is in line with appraisal theory.

2.3 Theoretical background and hypothesis development

Appraisal theory, consumer choice, and the valence of price affect

Appraisal theory spells out the antecedents and consequences of distinct affective responses. According to appraisal theory, individuals appraise surrounding events in terms of the consequences for their physical and/or psychological well-being (Lazarus 1991a, b). This implies that emotions arise from the cognitive appraisal of an event
rather than from the event itself (e.g., Frijda, Kuipers and ter Schure 1989; Lazarus 1991a, b; Roseman et al. 1990; Smith and Ellsworth 1985). Basic emotional responses (i.e., negative affect vs. positive affect) are driven by two sorts of primary appraisals, namely (i) whether individuals care about an event at all (Do I Care) and, if so, (ii) whether this event is good or bad for them (Good or Bad) (Smith, Haynes, Lazarus and Pope 1993; Lazarus 1991a, b).

First, the Do I Care appraisal refers to the notion of goal relevance. In making the Do I Care appraisal, decision-makers evaluate a target event (e.g., a price increase) against their subject-specific concerns (e.g., the desire to consume more rather than less). Here, concerns refer to an individual’s disposition to prefer—or dislike—particular events. Specifically, concerns are mental representations of desired end states. They serve as a standard of comparison against which outcomes are judged. If no concern is at stake, individuals will perceive a given event as irrelevant to their well-being. Thus, no affective responses are triggered. By contrast, events that are perceived as relevant to an individual’s well-being will give rise to emotional reactions (Lazarus 1991a, b).

Second, the Good or Bad appraisal is tied to the concept of goal congruence. In making the Good or Bad appraisal, individuals evaluate whether a particular event is beneficial or harmful, given their concerns. Events appraised as harmful will engender negative emotions (e.g., anger or fear) (Lazarus 1991a; Smith et al. 1993). Conversely, events appraised as beneficial will produce positive emotions (e.g., joy or hope). Other appraisal scholars have suggested similar match-mismatch conceptualizations of the antecedents of affect. For example, Roseman et al. (1990) have proposed the core appraisal dimension of situational state. In making an appraisal of their situational state, individuals broadly classify events as motive-consistent or motive-inconsistent. Events that are motive-consistent (e.g., a perceived price decrease) will give rise to positive emotions. Similarly, events that are motive-inconsistent (e.g., a perceived price increase) will produce negative emotions. Overall, events that are relevant to a decision-maker will give rise to emotions. The valence of these emotional responses, i.e. positive vs. negative, depends on whether a particular event is congruent, or incongruent, respectively, with a decision-maker’s motives and goals.

From a consumer perspective, consuming more is better. Thus, one of the major concerns against which events are judged is the desire to consume more rather than less. That is, consumers care about a change in relative prices because their current
level of consumption is at stake. Here, it is important to note that consumers’ purchasing power is driven by both income and prices. Thus, a price decrease enables consumers to buy, and consume, more of a given product or service. Conversely, a price increase forces consumers to buy, and consume, less. It follows that a perceived price decrease is a goal-congruent, or motive-consistent, event. It will arouse more positive price affect and less negative price affect. Analogously, a perceived price increase is a goal-incongruent, or motive-inconsistent, event. It will induce more negative price affect and less positive price affect. Given the present study’s focus on a price increase, the following hypothesis is proposed:

**H1:** A perceived price increase will induce higher levels of negative price affect and lower levels of positive price affect in consumers.

**The influence of price affect on consumer behavior**

For price affect to be a relevant construct, it has to meet two conditions. First, it should be involved in consumers’ processing of price information. Second, it should predict consumer behavior in a theory-consistent manner. Appraisal theory proposes a close link between emotions and behavior. According to Frijda (1986), emotions are changes in action readiness, i.e. the tendency to engage in, or disengage from, particular situations. Positive emotions (e.g., joy) are related to action tendencies like approach or activation. Conversely, negative emotions (e.g., fear) are associated with avoidance or inhibition. Lazarus (1991a) has proposed a similar mechanism through which cognitive appraisal translates into behavior. Individuals are presumed to cope with their emotions resulting from cognitive appraisal either in a problem-focused or emotion-focused way. Problem-focused coping involves planned actions to change unfavorable situations for the better and to maintain, or enhance, favorable ones. By contrast, emotion-focused coping is directed at altering one’s cognitions about a given situation. Yet, coping is not restricted to negative affect. With regard to positive affect, coping—or: capitalizing on—may take the form of expressive behavior, efforts to continue or increase rewards, and savoring the experience (Bagozzi et al. 1999; Langston 1994).

Affect evaluation and affect regulation theories offer a complementary perspective on how affect influences behavior (Andrade 2005). In affect evaluation, an individual’s feelings bias information processing, evaluation, and behavior in a consistent
manner (see, e.g., the affect-as-information perspective of Schwarz and Clore 1983; the mood congruence theory of Bower 1981; and the affect infusion model of Forgas 1995). Specifically, positive affect triggers more favorable evaluations which in turn stimulate proactive behavior such as higher purchase intent (Andrade). Negative emotions have a contrary effect. In affect regulation, individuals who feel bad will try to achieve—and then safeguard—a state of positive affect (Andrade; see also the mood management theory of Zillmann 1988; and the mood maintenance hypothesis of Clark and Isen 1982). From this perspective, negative affect—e.g., due to a price increase—will prompt particular actions such as leaving the store or expressing lower purchase intent in anticipation of the mood-lifting consequences of such behavior. Similarly, positive affect—e.g., due to a price decrease—will block certain actions such as turning to more expensive items in anticipation of the mood-threatening consequences of such behavior.

Empirically, the influence of affect on consumer behavior is well-documented. This is particularly true with respect to the marketing-exogenous moods and feelings that consumers bring to the marketing encounter. For example, Isen, Shalker, Clark and Karp (1978) found individuals in a positive affective state to rate consumer goods more favorably than subjects in a neutral or negative mood. Also, Lerner, Small and Lowenstein (2004) have provided evidence of a carryover effect of induced affect on consumers’ willingness to pay. In the context of emotions triggered by marketing action, ad-evoked affect represents a valuable analog to price affect. Both represent marketing-induced pre-purchase affect. In this regard, scholars have found ad-induced emotions to predict purchase intent and attitude toward the ad and/or brand (Batra and Ray 1986; Brown, Homer and Inman 1998; Burke and Edell 1989; Edell and Burke 1987). It is plausible to assume that price affect will have a similar influence on consumer behavior. The above observations are encapsulated in the following hypotheses:

**H2:** Negative price affect (H2a) and positive price affect (H2b) will be involved in translating price information into consumer behavior.

**H3:** Negative price affect will be related to passive consumer behavior (H3a), whereas positive price affect will be associated with proactive consumer behavior (H3b).
The interplay between price information, price cognitions, price affect, and consumer behavior

Appraisal theory not only establishes a contingency between events and emotions as well as emotions and behavior. It also explicates the processes by which events translate into behavior (see Lazarus 1991a, b; Roseman et al. 1990). The perception of an event (e.g., a price increase) will give rise to cognitions (e.g., perceived price unfairness). Specifically, is the cognitive appraisal of an event, rather than the event itself, that will trigger an emotional reaction (e.g., more negative price affect). Thus, price cognitions will mediate the effect of price information on price affect. Similarly, neither events nor cognitions are presumed to directly alter behavior. Rather, an individual’s effort to cope with his or her emotional reaction (e.g., more negative price affect) resulting from the cognitive appraisal of an event (e.g., perceived price unfairness due to a price increase) will lead to changes in behavior (e.g., lower purchase intent). Thus, price affect will mediate the effect of price cognitions on consumer behavior. Overall, the following hypotheses are proposed:

**H4:** Price cognitions will mediate the effect of price information on negative price affect (H4a) and positive price affect (H4b).

**H5:** Negative price affect (H5a) and positive price affect (H5b) will mediate the effect of price cognitions on consumer behavior.

**Price affect as a standalone predictor of consumer behavior**

There would be little reason to bemoan the cognitive hegemony in behavioral pricing research unless price affect improved the prediction of consumer behavior beyond price cognitions. Thus, assessing the ability of price affect to explain consumer behavior as a standalone predictor makes for a particularly strong test of its relevance. It should be noted that a confirmation of H5 does not automatically imply that price affect is also incrementally valid beyond price cognitions. Rather, it is only when mediation is incomplete that thoughts and feelings are complementary in predicting consumer behavior: When mediation is incomplete, the direct effect of price cognitions on consumer behavior must be different from zero. By contrast, when mediation is complete, price affect and price cognitions exert redundant effects on consumer behavior. This is because, when mediation is complete, the direct effect of price cognitions on
consumer behavior must be equal to zero. Yet, appraisal theory does not clearly suggest that emotions will only partially mediate the effect of cognitions on behavior.

At the same time, several strands of research suggest that cognition and affect shape behavior jointly, yet independently (e.g., Cohen and Areni 1991; Edwards 1990; Schwarz 2000; Sojka and Giese 1997). Individuals unbounded by a specific situation may process information using either affect, cognition, both, or neither (Sojka and Giese). Also, Lavine, Thomsen and Zanna (1998) have argued that judgments are affected by both the cognitive assessment of an object’s attributes and the emotions the object arouses. Finally, multi-component models suggest that cognition and affect are standalone predictors of behavior (Ajzen 2001; Bargh 2002; Hoch and Loewenstein 1991). Thus, price affect and price cognitions are expected to exert non-redundant effects on consumer behavior.

On the empirical front, Allen, Machleit and Kleine (1990) have provided evidence that emotions improve the prediction of behavior beyond attitudes, which also contain a cognitive component. In the same vein, Abelson, Kinder, Peter and Fiske (1982) have demonstrated that voters’ emotional responses improve the prediction of the overall evaluation of a political candidate beyond their cognitions about the candidate’s personal qualities. Similar evidence has been obtained in the realm of marketing-induced pre-purchase affect. Batra and Ray (1986) have found ad-evoked affect to predict ad attitude while controlling for the effect of consumers’ cognitive responses. Finally, Miniard, Bhatla and Rose (1990) have reported that, when consumer involvement was low, emotions were more important determinants of ad attitude than cognitions. Yet, under high involvement, both thoughts and feelings had predictive validity. Overall, the following hypothesis is proposed:

**H6:** Price affect will improve the prediction of consumer behavior over and above price cognitions.

**Crowding-out of price affect and crowding-in of price cognitions as a result of a price increase**

The latter findings of Miniard et al. (1990) warrant closer attention. They seem to suggest that the impact of affect on behavior decreases as personal relevance increases. In this regard, the affect infusion model predicts that individuals will use heuristic processing—i.e., a high affect infusion strategy—when the evaluative target is simple
and/or personal relevance is low (Forgas 1995). In the context of pricing, it is plausible to assume that higher prices generally produce greater cognitive involvement because more is at stake. This implies that higher prices will lead to less heuristic processing. Consequently, as the absolute price level increases, consumers will base higher-level judgments (e.g., purchase intent or willingness to spread positive word-of-mouth) on more cognitive processing and less affective processing. Thus:

**H7:** As the absolute price level rises, the importance of price affect (price cognitions) in predicting consumer behavior will decrease (increase).

### 2.4 Methodology

#### Sample

The sample consisted of $N = 1,533$ consumers participating in an online market research study on airline prices. 51.1% were female and 71.4% were between the ages of 21 and 50. All of the consumers had booked at least one flight during the last twelve months and intended to book at least another flight in the next twelve months, suggesting that they were both sufficiently knowledgeable and involved to participate in the study. The vast majority of consumers (91.5%) were private travelers. 47.3% reported a monthly disposable income of more than € 2,500. All of the consumers were recruited by a commercial panel provider and were hence compensated for participation. They routinely participated in online surveys and were thus familiar with this type of data collection. The survey instrument was in German, and all of the consumers were from the German-speaking world.

#### Measures

*Price affect.* Price affect was measured using 24 emotion descriptors from Watson and Tellegen’s (1985) circumplex model of affect. These items were also employed by Mano (1991). They were presented in random order on an 11-point Likert scale ranging from 1, *not at all*, to 11, *very much*. The instruction read ‘When I see the price of the target offer I feel:’ and was followed by the emotion descriptors (e.g., happy). Thus, consumers were asked to report their *anticipatory* emotions, i.e. those experienced at the moment of decision-making, rather than their *anticipated* emotions, i.e. those predicted to occur as the outcome of decision-making materializes (Loewenstein et al. 2001). Affective items based on the two-factor theory of affect were employed
because they correspond to the present study’s conceptual framework of price affect. That is, the basic distinction between negative and positive emotions is in line with appraisal theory (see, e.g., Roseman et al. 1990), i.e. the distinction between motive-inconsistent and motive consistent events, respectively.

**Price cognitions.** Two cognitive constructs traditionally featured in behavioral pricing research were included in this study. First, consumers were asked to make a value-for-money judgment (‘Given its price, the value of this offer is:’). Second, consumers reported their perceptions of price (un)fairness (‘The price of this offer is:’). Both of these single-item measures were rated on a 7-point Likert scale ranging from 1, *very low*, to 7, *very high*, and 1, *very unfair*, to 7, *very fair*, respectively. Perceived value and perceived price fairness were considered appropriate cognitive constructs for two reasons. First, the processing of both value-related and fairness-related price information requires some cognitive effort. For example, consumers have to make a price-quality trade-off or a comparison between a reference price and a target price. Second, perceptions of value and fairness are strongly associated with consumers’ purchase behavior (e.g., Xia et al. 2004; Zeithaml 1988). This made them preferable to other price-related cognitive measures, e.g. price knowledge.

**Consumer behavior.** Consumer behavior was operationalized through two key behavioral intentions. First, consumers indicated their willingness to spread positive word-of-mouth (‘I would recommend this offer to a friend.’). Second, consumers reported their purchase intent (‘I would book this flight.’). Again, participants rated both of these single-item measures on a 7-point Likert scale ranging from 1, *strongly disagree*, to 7, *strongly agree*.

**Procedure**
Consumers were contacted by a commercial panel provider via email and asked to participate in an online market research study on airline prices. This study employed a quasi-experimental within-subjects design including a factor with two levels. Specifically, consumers were asked to compare the reference offer of a European low-cost carrier with the target offer of a European flag carrier in two different scenarios. These scenarios implied two different price levels, i.e. low vs. high. Given the present within-subjects design, participants rated all of the above affective, cognitive, and behavioral measures twice, i.e. first in the low-price scenario and then in the high-price scenario.

The offer used in the present study was a European continental flight. It was identi-
cal for the low-cost carrier and the flag carrier and remained unchanged in both scenarios. Similarly, the price for the flight offered by the low-cost carrier was held constant across scenarios. Only the price for the flight offered by the flag carrier was experimentally manipulated. That is, in the low-price scenario, the price for the reference offer (low-cost carrier) was € 49, whereas the price for the target offer (flag carrier) was € 69. In the high-price scenario, the price for the reference offer (low-cost carrier) remained at € 49, while the price for the target offer (flag carrier) was raised to € 119.

The price for the reference offer was included because consumers often evaluate prices relative to a reference level (Kahneman and Tversky 1979; Thaler 1985). Yet, participants were instructed to base their responses exclusively on the target offer (flag carrier). This setup—a change in relative prices—corresponds to a marketplace situation frequently encountered by consumers: One company raises its prices, while its competitors do not. Thus, the within-subjects design enables the present research to study consumers’ affective, cognitive, and behavioral responses to a price increase.

2.5 Results

Derivation of a price affect scale (PRIAS)

A psychometric measure of price affect, i.e. the PRIAS, was derived in a two-step process. First, the 24 emotion descriptors were subjected to an exploratory principal components factor analysis with varimax rotation. Appraisal theory maintains that negative and positive affect are triggered by motive-inconsistent and motive-consistent events, respectively. Therefore, two factors were extracted at both price levels. At the low (high) price level, the two-factor solution explained 44.6% (46.5%) of the variance. Using a factor loading cut-off score of .50, the two factors were interpreted as negative price affect and positive price affect. The results of the exploratory factor analysis, i.e. factor loadings, are reported in Table 2.

Second, items loading above .50 on either negative price affect or positive price affect across price levels (i.e., those typed in bold in Table 2) were retained. They were then subjected to a confirmatory factor analysis aimed at purifying this initial 17-item measurement model. At both price levels, measurement model refinement was guided by significant reductions in $\chi^2$ (as indicated by modification indices), model parsimony, and improvement in both local and global fit. At a given step in the process of scale purification, the item with the lowest squared multiple correlation was removed from the model. Moreover, when modification indices suggested that an item (e.g.,
nervous) represents a factor inconsistent with its valence (e.g., positive price affect), the item was deleted—provided the above criteria were met. This procedure was repeated until the RMSEA (CFI) metrics were near .06 (.95), thus indicating good fit (Hu and Bentler 1999). The mean squared multiple correlation for the subscales of the PRIAS was required to exceed .50 at both price levels.

Table 2. Results of the exploratory factor analysis: Factor loadings.

<table>
<thead>
<tr>
<th>Item</th>
<th>Low Price Level</th>
<th>High Price Level</th>
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<tbody>
<tr>
<td></td>
<td>Negative Price Affect</td>
<td>Positive Price Affect</td>
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<tr>
<td>Sad</td>
<td>.76</td>
<td>-.15</td>
</tr>
<tr>
<td>Anxious</td>
<td>.75</td>
<td>.03</td>
</tr>
<tr>
<td>Nervous</td>
<td>.74</td>
<td>.11</td>
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<tr>
<td>Blue</td>
<td>.72</td>
<td>-.19</td>
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<tr>
<td>Drowsy</td>
<td>.71</td>
<td>-.06</td>
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<tr>
<td>Fearful</td>
<td>.71</td>
<td>-.12</td>
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<tr>
<td>Unhappy</td>
<td>.65</td>
<td>-.28</td>
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<td>Sleepy</td>
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<td>-.05</td>
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<td>.60</td>
</tr>
<tr>
<td>Relaxed</td>
<td>-.21</td>
<td>.59</td>
</tr>
<tr>
<td>Calm</td>
<td>-.26</td>
<td>.38</td>
</tr>
<tr>
<td>Still</td>
<td>.04</td>
<td>.36</td>
</tr>
<tr>
<td>Quiet</td>
<td>-.25</td>
<td>.29</td>
</tr>
<tr>
<td>At Rest</td>
<td>-.20</td>
<td>.24</td>
</tr>
</tbody>
</table>

Note: Items loading ≥.50 or greater across price levels are defined here as markers. Items typed in bold were retained for the confirmatory factor analysis.

As shown in Table 3, the confirmatory factor analysis yielded the 9-item PRIAS consisting of negative price affect (unhappy, blue, fearful, sluggish, sad) and positive price affect (pleased, happy, elated, active). This 9-item measure was obtained in both scenarios, suggesting that the results are robust across price levels. At both price levels, coefficient alpha for the subscales of the PRIAS was between .85 and .88, indicating satisfactory scale homogeneity. As expected, the subscales were negatively correlated at both price levels, both $rs \leq -.37$, both $ps = .000$. Finally, Table 4 shows that measurement model refinement led to a substantial improvement in global fit at both
price levels. The subscales of the PRIAS will be used in the remainder of this paper.

Table 3. Results of the confirmatory factor analysis: The price affect scale (PRIAS).

<table>
<thead>
<tr>
<th>Item</th>
<th>Low Price Level</th>
<th>High Price Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Negative Price Affect</td>
<td>Positive Price Affect</td>
</tr>
<tr>
<td>Sad</td>
<td>.87 (.03)***</td>
<td>.88 (.03)***</td>
</tr>
<tr>
<td></td>
<td>.98 (.03)***</td>
<td>.96 (.03)***</td>
</tr>
<tr>
<td>Blue</td>
<td>.89 (.03)***</td>
<td>.88 (.03)***</td>
</tr>
<tr>
<td>Fearful</td>
<td>1.00 (—)</td>
<td>1.00 (—)</td>
</tr>
<tr>
<td>Unhappy†</td>
<td>.88 (.03)***</td>
<td>.85 (.03)***</td>
</tr>
<tr>
<td>Sluggish</td>
<td>Elated</td>
<td>.83 (.03)***</td>
</tr>
<tr>
<td>Happy</td>
<td>—</td>
<td>.96 (.03)***</td>
</tr>
<tr>
<td>Pleased‡</td>
<td>—</td>
<td>1.00 (—)</td>
</tr>
<tr>
<td>Active</td>
<td>—</td>
<td>.64 (.03)***</td>
</tr>
</tbody>
</table>

Note. The upper number denotes unstandardized coefficients (standard errors in parentheses). The lower number refers to the item’s squared multiple correlation.  
† Reference indicator.  
‡ Reference indicator.  
*** p < .001.

Table 4. Global fit measures for the initial 17-item measurement model and the PRIAS.

<table>
<thead>
<tr>
<th>Measure of Global Fit</th>
<th>Low Price Level</th>
<th>High Price Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Initial 17-Item Model</td>
<td>PRIAS</td>
</tr>
<tr>
<td>χ²</td>
<td>2,477.02 (df = 118)</td>
<td>194.69 (df = 26)§</td>
</tr>
<tr>
<td>RMSEA</td>
<td>.127</td>
<td>.068</td>
</tr>
<tr>
<td>CFI</td>
<td>.916</td>
<td>.983</td>
</tr>
<tr>
<td>NFI</td>
<td>.913</td>
<td>.981</td>
</tr>
<tr>
<td>IFI</td>
<td>.917</td>
<td>.983</td>
</tr>
<tr>
<td>GFI</td>
<td>.812</td>
<td>.971</td>
</tr>
</tbody>
</table>

Note. RMSEA = Root mean square error of approximation; CFI = Comparative fit index; NFI = Normed fit index; IFI = Incremental fit index; GFI = Goodness of fit index.  
§ The improvement in χ² was significant: The critical χ²-value (α = .05) for 118 - 26 = 92 degrees of freedom is 115.40.
Changes in negative price affect and positive price affect as a result of a price increase

H1 predicts that a perceived price increase will lead to an increase in negative price affect and a decrease in positive price affect. If true, consumers should experience more negative price affect and less positive price affect in the high-price scenario than in the low-price scenario. In testing H1, a two-group (low vs. high price level) structural equation model (SEM), i.e. SEM-1, was estimated, $\chi^2(130) = 634.54 \ (p = .000)$, RMSEA = .051, CFI = .991. This was done to compare variable means across the two factor levels. Mean changes in positive price affect, negative price affect, perceived value, perceived fairness, positive word-of-mouth, and purchase intent are given in Figure 1.

![Figure 1](image)

**Figure 1.** Mean changes in price affect, price cognitions, and consumer behavior as a result of a price increase from € 69 to € 119.

As expected, a price increase reduced perceived value. Consumers also perceived the high price as less fair than the low price. Similarly, a price increase led consumers to report lower willingness to spread positive word-of-mouth and lower purchase intent. Finally, consumers experienced less positive price affect and more negative price affect as a result of a price increase from € 69 to € 119. Therefore, H1 was confirmed.
Figure 2. Negative price affect and positive price affect as mediators of the effect of price cognitions on consumer behavior at different price levels (SEM-2).
The predictive validity of price affect

According to H3, negative price affect is related to passive consumer behavior, whereas positive price affect is associated with proactive consumer behavior. If H3 were true, higher levels of negative price affect should reduce consumers’ willingness to spread positive word-of-mouth and purchase intent. Conversely, higher levels of positive price affect should increase consumers’ willingness to spread positive word-of-mouth and purchase intent. To test H3, another two-group (low vs. high price level) SEM was estimated (SEM-2). It is shown in Figure 2. In this cognitive-affective SEM-2, consumer behavior (i.e., positive word-of-mouth and purchase intent) was regressed on price cognitions (i.e., perceived value and perceived fairness) and consumers’ emotional responses (i.e., negative price affect and positive price affect). Thus, in assessing the predictive validity of price affect, price cognitions were controlled for. SEM-2 displayed measurement model equivalence, $\Delta \chi^2(7) = 1.46, p = .984$. Yet, it did not exhibit equivalence of construct equations, $\Delta \chi^2(8) = 39.18, p = .000$. Therefore, structural equation coefficients were allowed to differ across price levels.

In testing H3, one-sided tests were performed on the structural equation coefficients. This was deemed appropriate because of the present study’s directed hypotheses concerning the influence of price affect on consumer behavior. As shown in Figure 2, price cognitions predicted consumer behavior at both price levels. Consumers who perceived the target offer as more valuable and fairer also reported greater willingness to spread positive word-of-mouth and higher purchase intent. Moreover, negative price affect was associated with passive consumer behavior, whereas positive price affect was related to proactive consumer behavior. These latter findings held at both price levels. Specifically, consumers who experienced more negative price affect also reported lower willingness to spread positive word-of-mouth and lower purchase intent. Conversely, consumers who experienced more positive price affect were also more willing to spread positive word-of-mouth and more inclined to buy the airline ticket. At both price levels, the four cognitive and affective predictors jointly accounted for at least 70% of the variability in consumer behavior. Overall, H3 was corroborated.

Price affect as a mediator of the effect of a price increase on consumer behavior

In elaborating H2, it has been argued that the proposed construct of price affect will only be relevant to the extent that it is actually involved in consumers’ processing of price information. To address this issue formally, a mediation analysis was performed.
If H2 were correct, negative price affect and positive price affect should mediate the effect of a price increase on consumer behavior.

**Figure 3.** Price cognitions, negative price affect, and positive price affect as mediators of the effect of a price increase on consumer behavior (SEM-3).

In a first step of testing H2, SEM-3 was estimated. It is shown in Figure 3. In SEM-3, consumer behavior (i.e., positive word-of-mouth and purchase intent) was regressed on price information (i.e., a price increase). Consumers’ cognitive and affective responses (i.e., perceived value, perceived fairness, negative price affect, and positive price affect) served as mediating constructs. The price difference dummy variable was coded 1 for the high-price scenario and 0 for the low-price scenario. As expected, a price increase reduced perceived value, perceived fairness, and positive price affect, while it increased negative price affect. In addition, perceived value, perceived fairness, and positive price affect were positively related to positive word-of-mouth and
purchase intent. Negative price affect was negatively related to the two proxies of consumer behavior.

In a second step, Sobel tests were performed (Baron and Kenny 1986; Sobel 1982). Table 5 reports the results of the mediation analysis. Perceived value and perceived fairness mediated the effect of a price increase on positive word-of-mouth and purchase intent. Moreover, a price increase was found to exert its causal influence on consumer behavior through changes in both negative price affect and positive price affect. These findings, corroborating H2, suggest that consumers’ behavioral responses to price information (i.e., a price increase) are driven by both price cognitions and price affect.

Table 5. Price cognitions, negative price affect, and positive price affect as mediators of the effect of a price increase on consumer behavior.

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Mediator</th>
<th>Positive Word-of-Mouth</th>
<th>Purchase Intent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price Increase&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Perceived Value</td>
<td>−14.00***</td>
<td>−12.69***</td>
</tr>
<tr>
<td></td>
<td>Perceived Fairness</td>
<td>−22.63***</td>
<td>−22.66***</td>
</tr>
<tr>
<td></td>
<td>Negative Price Affect</td>
<td>−5.06***</td>
<td>−5.44***</td>
</tr>
<tr>
<td></td>
<td>Positive Price Affect</td>
<td>−11.70***</td>
<td>−9.53***</td>
</tr>
</tbody>
</table>

Note. Numbers denote Sobel test statistics, i.e., z-values.

<sup>a</sup> Technically speaking, the relative price level is the independent variable. To facilitate interpretation, it is here referred to as a price increase.

*** p < .001.

The mediating role of price cognitions and price affect may be defined more closely by assessing whether mediation was complete or incomplete. In doing so, the statistical significance of the two direct effects of a price increase on consumer behavior was examined. When the four mediating constructs are controlled for, full mediation would be indicated by non-significant direct effects of a price increase on positive word-of-mouth and purchase intent. However, Figure 3 shows that these two direct effects were each different from zero, both $\Delta \chi^2(1) \geq 31.14$, both $p = .000$. Thus, the effect of a price increase on consumer behavior was partially mediated by price cognitions and price affect. This implies that the consideration of additional variables may be necessary to fully explain the translation of price information into consumer behav-
ior. Yet, the deterioration in $\chi^2$ resulting from the removal of the two direct effects, albeit significant, was small given the sample size of $N = 1,533$. The exclusion of price affect, $\Delta \chi^2(4) = 271.07, p = .000$, and price cognitions, $\Delta \chi^2(4) = 2,005.62, p = .000$, produced much larger deteriorations in model fit in terms of $\chi^2$. This finding suggests that SEM-3 (see Figure 3) features the major constructs involved in consumers’ processing of price information, namely price cognitions and price affect.

**Price cognitions as mediators of the effect of a price increase on price affect**

H4 states that price cognitions will mediate the effect of price information on price affect. Put differently, price information (e.g., a price increase) is expected to exert its causal influence on price affect through cognitive appraisal (e.g., perceived price unfairness). To address this issue formally, a mediation analysis was performed. If H4 were correct, perceived value and perceived fairness should mediate the effect of a price increase on both negative price affect and positive price affect.

In a first step of testing H4, SEM-4 was estimated. It is depicted in Figure 4. In SEM-4, price information (i.e., a price increase), price cognitions (i.e., perceived value and perceived fairness), consumers’ emotional responses (i.e., negative price affect and positive price affect), and consumer behavior (i.e., positive word-of-mouth and purchase intent) were related to each other in accordance with appraisal theory. The price difference dummy variable was again coded 1 for the high-price scenario and 0 for the low-price scenario. One-sided tests were performed on the structural equation coefficients. This was deemed appropriate based on appraisal theory (see H3, H4 and H5) as well as previous research linking price cognitions to consumer behavior (e.g., Thaler 1985; Xia et al. 2004; Zeithaml 1988). As expected, a price increase reduced perceived value, perceived fairness, and positive price affect. Yet, unexpectedly, a price increase was negatively related to negative price affect. In addition, perceived value and perceived fairness were positively related to positive word-of-mouth and purchase intent. With one exception, negative (positive) price affect was negatively (positively) related to perceived value, perceived fairness, positive word-of-mouth and purchase intent. That is, perceived value did not predict negative price affect.

One explanation for the lack of association between perceived value and negative price affect may be gleaned from SEM-2 (see Figure 2). At the low price level, perceived value reduced negative price affect. Yet, at the high price level, perceived value increased negative price affect, which is inconsistent with expectations. It is conceiv-
able that consumers used the target price as a quality cue in the high-price scenario, while they chose to disregard it as a quality cue in the low-price scenario. Thus, at the high price level, perceived value may have been driven by a higher price. When judged separately, however, this higher price also induced more negative price affect in consumers. A possible explanation for the negative association between a price increase and negative price affect is that perceived value acted as a suppressor variable in SEM-4 (see Kenny, Kashy and Bolger 1998; MacKinnon, Krull and Lockwood 2000).

**Figure 4.** A cognitive-affective model of the effect of a price increase on consumer behavior based on appraisal theory (SEM-4).

In a second step, Sobel tests were performed. Table 6 reports the results of the mediation analysis. Perceived value did not mediate the effect of a price increase on negative price affect. Yet, a price increase was found to reduce positive price affect through perceptions of lower value. Perceptions of price (un)fairness mediated the effect of a price increase on both negative price affect and positive price affect. Thus, H4a was
partially confirmed, whereas H4b was fully corroborated. A supplementary analysis revealed that mediation was incomplete, both $\Delta \chi^2(1) \geq 5.95$, both $p \leq .015$. Overall, results suggest that consumers’ affective responses to price information are driven by their cognitive appraisal of such price information.

**Table 6. Testing appraisal theory: Price cognitions as mediators of the effect of a price increase on negative price affect and positive price affect.**

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Mediator</th>
<th>Negative Price Affect</th>
<th>Positive Price Affect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price Increase$^a$</td>
<td>Perceived Value</td>
<td>.07</td>
<td>-8.81***</td>
</tr>
<tr>
<td></td>
<td>Perceived Fairness</td>
<td>17.80***</td>
<td>-19.63***</td>
</tr>
</tbody>
</table>

*Note. Numbers denote Sobel test statistics, i.e. z-values.

$^a$ Technically speaking, the relative price level is the independent variable. To facilitate interpretation, it is here referred to as a price increase.

*** $p < .001$.

**Price affect as a mediator of the effect of price cognitions on consumer behavior**

According to H5, price affect will mediate the effect of price cognitions on consumer behavior. Put differently, changes in behavior are presumed to reflect coping responses, i.e. a consumer’s effort to cope with his or her emotional reactions resulting from the cognitive appraisal of price information. A mediation analysis was performed to address this issue formally. If H5 were correct, negative price affect and positive price affect should mediate the effect of perceived value and perceived fairness on positive word-of-mouth and purchase intent.

In testing H5, SEM-2 was re-examined (see Figure 2). Sobel tests were conducted. It was assumed that positive price affect is positively related to both perceived value and perceived fairness, whereas negative price affect is negatively related to these two price cognitions (see H4). In addition, H3 states that positive price affect is associated with proactive consumer behavior, whereas negative price affect is related to passive consumer behavior. Given this set of directed hypotheses, one-tailed z-tests were performed to test for mediation with greater statistical power. The results of the mediation analysis are shown in Table 7. Positive price affect was found to mediate the effect of price cognitions on consumer behavior across both price levels. At the low price level, negative price affect consistently carried the effect of price cognitions to consumer
behavior. By contrast, at the high price level, negative price affect merely mediated the effect of perceived (un)fairness on consumer behavior. Here, negative price affect failed to mediate the effect of perceived value on consumer behavior. When mediation occurred, it was found to be incomplete, all $\Delta \chi^2(2) \geq 213.71$, all $p = .000$. Taken together, H5 was corroborated. Results suggest that consumers adapt their behavior, or behavioral intentions, in an effort to cope with their emotional responses resulting from the cognitive appraisal of price information.

**Table 7. Testing appraisal theory: Negative price affect and positive price affect as mediators of the effect of price cognitions on consumer behavior at different price levels.**

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Mediator</th>
<th>Low Price Level</th>
<th>High Price Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Positive Word-of-Mouth</td>
<td>Purchase Intent</td>
</tr>
<tr>
<td>Perceived Value</td>
<td>Negative Price Affect</td>
<td>2.45**</td>
<td>2.52**</td>
</tr>
<tr>
<td></td>
<td>Positive Price Affect</td>
<td>6.35***</td>
<td>5.40***</td>
</tr>
<tr>
<td>Perceived Fairness</td>
<td>Negative Price Affect</td>
<td>5.15***</td>
<td>6.03***</td>
</tr>
<tr>
<td></td>
<td>Positive Price Affect</td>
<td>9.10***</td>
<td>6.80***</td>
</tr>
</tbody>
</table>

Note. Numbers denote Sobel test statistics, i.e. z-values.
† No mediation was diagnosed because the effect of perceived value on negative price affect was not in the hypothesized direction.

**The incremental validity of price affect beyond price cognitions**

H6 posits that price affect will improve the prediction of consumer behavior beyond price cognitions. If so, negative price affect and positive price affect should jointly account for a significant amount of variance in positive word-of-mouth and purchase intent beyond that already explained by perceived value and perceived fairness. The finding that price affect predicts consumer behavior while controlling for the effect of price cognitions is suggestive, but not conclusive, evidence of incremental validity. The same is true for the finding that price affect partially mediates the effect of price cognitions on consumer behavior. Thus, a formal approach to testing for incremental validity is required. This test involves a comparison between the $\chi^2$-value of a cognitive-affective model with the $\chi^2$-value of a nested cognitive reference model. In the
cognitive reference model, the effect of price affect on consumer behavior is con-strained to zero, i.e. the affective paths are dropped. If the effect of price affect on consumer behavior is actually different from zero, the fit of the nested cognitive reference model will be worse than that of the cognitive-affective model. Degrees of freedom for this $\chi^2$-test are equal to the difference in the number of model parameters. This test was performed on SEM-2 (see Figure 2).

In the two-group cognitive SEM-2, $\chi^2(123) = 802.28$ ($p = .000$), CFI = .987, RMSEA = .060, structural equation coefficients were allowed to differ across price levels because construct equations were not equivalent, $\Delta\chi^2(4) = 18.36$, $p = .001$. As expected, both perceived value and perceived fairness were positively related to positive word-of-mouth and purchase intent. The two cognitive predictors jointly accounted for at least 67% of the variance in consumer behavior. A comparison between the fit of the cognitive SEM-2, $\chi^2(123) = 802.28$, and the fit of the cognitive-affective SEM-2, $\chi^2(115) = 518.24$, revealed that negative price affect and positive price affect jointly achieved incremental validity beyond price cognitions, $\Delta\chi^2(8) = 284.04$, $p = .000$. At the low (high) price level, price affect improved the prediction of positive word-of-mouth in terms of $R^2$ by three (one) percentage point(s). The same was true for purchase intent.

To further investigate whether negative price affect and positive price affect made independent contributions to the enhanced prediction of consumer behavior, they were entered one by one into the cognitive SEM-2. The two measures of price affect achieved incremental validity beyond price cognitions individually, both $\Delta\chi^2(4)s \geq 71.49$, both $ps = .000$. In addition, controlling for the effect of price cognitions, negative price affect and positive price affect were found to be incrementally valid over and above each other, both $\Delta\chi^2(4)s \geq 56.49$, both $ps = .000$. In sum, H6 was corroborated. Results suggest that price cognitions and price affect are distinct constructs—each endowed with predictive validity.

**Crowding-out of price affect and crowding-in of price cognitions as a result of a price increase**

H7 states that the importance of price affect (price cognitions) in predicting consumer behavior will decrease (increase) as the absolute price level rises. If H7 were true, the structural equation coefficients for price affect should be larger at the low price level than at the high price level. Conversely, the structural equation coefficients for price
cognitions should be larger at the high price level than at the low price level. Yet, there is some controversy as to whether the use of standardized or unstandardized regression weights is more appropriate in determining the relative importance of different explanatory variables. This is particularly true when the data are from a controlled experiment (see, e.g., Agresti and Finlay 1997; Kim and Feree 1981). Thus, H7 was tested analyzing both unstandardized and standardized structural equation coefficients. Again, SEM-2 was considered (see Figure 2).

In a two-group SEM, one may formally test for differences in the size of model parameters (e.g., regression weights) across the two groups (e.g., low vs. high price level) by imposing an equality constraint on a given parameter. If the equality constraint yields a significant deterioration in model fit in terms of $\chi^2$, the model parameter is larger in one group than in the other.

First, two block tests were performed. This was done to establish whether the unstandardized coefficients for price affect and price cognitions, respectively, were on average larger in one scenario than in the other. The unstandardized affective coefficients were—in absolute terms—larger in the low-price scenario than in the high-price scenario ($M = .13$ vs. $M = .08$), $\Delta \chi^2(4) = 24.49, p = .000$. Conversely, the cognitive coefficients were larger at the high price level than at the low price level ($M = .42$ vs. $M = .38$), $\Delta \chi^2(4) = 25.59, p = .000$. These findings are consistent with H7.

Second, several single-degree-of-freedom tests were performed to assess changes in the size of a particular unstandardized coefficient. With regard to price cognitions, the unstandardized effect of perceived fairness on both positive word-of-mouth and purchase intent was larger at the high price level than at the low price level, both $\Delta \chi^2(1)s \geq 10.60$, both $p$s $\leq .001$. The unstandardized effect of perceived value on positive word-of-mouth did not differ across price levels, $\Delta \chi^2(1) = 2.50, p = .107$. Inconsistent with H7, the unstandardized effect of perceived value on purchase intent was even greater at the low price level than at the high price level, $\Delta \chi^2(1) = 5.38, p = .020$. With respect to price affect, the unstandardized effect of negative price affect on both positive word-of-mouth and purchase intent was—in absolute terms—larger at the low price level than at the high price level, both $\Delta \chi^2(1)s \geq 8.94$, both $p$s $\leq .003$. Unexpectedly, the unstandardized effect of positive price affect on both positive word-of-mouth and purchase intent did not differ across price levels, both $\Delta \chi^2(1)s \leq 1.36$, both $p$s $\geq .244$. While the results for perceived fairness and negative price affect are in line with H7, those for perceived value and positive price affect are not.
Third, standardized coefficients were compared across price levels. In doing so, the common metric completely standardized solution was examined. With regard to price cognitions, perceived fairness was more important in predicting positive word-of-mouth at the high price level (.58) than at the low price level (.48). The same pattern held for purchase intent (.62 vs. .47). Inconsistent with H7, perceived value had a larger impact on positive word-of-mouth at the low price level (.24) than at the high price level (.20). The same was true for purchase intent (.23 vs. .16). With respect to consumers’ emotional responses, negative price affect had a larger influence on positive word-of-mouth at the low price level (−.11) than at the high price level (−.04). Similar results were obtained for purchase intent (−.15 vs. −.02). Finally, positive price affect was more important in predicting positive word-of-mouth at the low price level (.21) than at the high price level (.17). Yet, the impact of positive price affect on purchase intent was the same across price levels (.16).

Finally, two Wilcoxon tests were performed on the standardized structural equation coefficients. This was done to determine whether the standardized coefficients for price affect and price cognitions, respectively, were on average larger in one scenario than in the other. One-sided tests were conducted because H7 states that a price increase will lead to a crowding-out, rather than a crowding-in, of price affect, for example. The standardized coefficients for price affect were—in absolute terms—larger at the low price level than at the high price level (M = .15 vs. M = .09), z = 1.83, p = .034. Yet, the standardized structural equation coefficients for price cognitions did not differ in size across price levels (M = .34 vs. M = .40), z = .73, p = .236. Two paired-samples t-tests (one-tailed) confirmed these findings, t(3) = 3.29, p = .023, and t(3) = 1.09, p = .178, respectively. Results suggest that a price increase led to a crowding-out of price affect. The predictive importance of price cognitions, however, was constant across price levels. Overall, H7 was partially confirmed.

2.6 Discussion and conclusions

Findings

Taking the cognitive hegemony in the field of behavioral pricing as a point of departure, the research agenda for this paper was fivefold, namely (i) to provide a conceptual framework of price affect based on appraisal theory, (ii) to derive a psychometric measure of price affect (i.e., the PRIAS), (iii) to study the mechanics of price affect in response to a price increase, (iv) to determine the relevance of price affect by examin-
ing its predictive validity and mediating properties in conjunction with price cognitions, and (v) to analyze whether the interplay between price information, price cognitions, price affect, and consumer behavior is in line with appraisal theory.

A field experiment involving $N = 1,533$ consumers has yielded the following results: A price increase induces higher levels of negative price affect and lower levels of positive price affect in consumers. Also, negative price affect is related to passive consumer behavior (e.g., lower purchase intent), whereas positive price affect is associated with proactive consumer behavior (e.g., higher willingness to spread positive word-of-mouth). In addition, both price cognitions and price affect mediate the effect of a price increase on consumer behavior. Consistent with appraisal theory, a price increase exerts its causal influence on price affect through changes in price cognitions. Similarly, price affect mediates the effect of price cognitions on consumer behavior. Moreover, price affect improves the prediction of consumer behavior beyond price cognitions. Finally, the importance of price affect in predicting consumer behavior decreases as the absolute price level increases. These findings, corroborating the hypothesized construct of price affect, have several implications.

**Theoretical and practical implications**

**Theoretical implications.** The present research extends previous work on consumers’ emotional responses to prices in several ways. O’Neill and Lambert (2001) and Suri et al. (2002) have studied consumers’ affective reactions to stationary and/or holistic price information. By contrast, the present paper conceptualized price information as a perceived shift in relative prices. From a consumer perspective, such shifts in relative prices can either be motive-consistent (e.g., a perceived price decrease) or motive-inconsistent (e.g., a perceived price increase). Based on this conceptualization, appraisal theory may be applied to a broad variety of issues in behavioral pricing. The core tenet of appraisal theory is that emotions result from the cognitive appraisal of an event rather than from the event itself: What counts is whether price information is relevant from a consumer perspective, not from a normative perspective. At the same time, myriad studies in behavioral pricing have shown that consumer behavior is biased by normatively irrelevant price information (e.g., external reference prices). Thus, appraisal theory lends itself ideally to studying consumers’ affective responses to both normatively relevant and irrelevant price information.
Another virtue of appraisal theory lies in the fact that it is explicit on both the antecedents and consequences of affect. With respect to the antecedents of affect, emotions arise from the cognitive appraisal (e.g., perceived price unfairness) of an event (e.g., a perceived price increase). With regard to the consequences of affect, changes in behavior (e.g., lower purchase intent) reflect an individual’s effort to cope with his or her emotions resulting from the cognitive appraisal of an event (e.g., perceived price unfairness due to a perceived price increase). Thus, appraisal theory may be used to incorporate price affect into behavioral pricing research (see Figure 5). Many of the cog-
nitive constructs featured in behavioral pricing research (e.g., perceived price fairness) may act as mediators between price information and price affect. Similarly, price affect may be included as a mediator between price cognitions and consumer behavior.

The present paper also demonstrates that price affect is a standalone predictor of consumer behavior: Price affect is involved in consumers’ processing of price information and improves the prediction of consumer behavior beyond price cognitions. This is consistent with multi-component models, suggesting that cognition and affect influence behavior independently (e.g., Ajzen 2001; Bargh 2002; Hoch and Loewenstein 1991). In doing so, negative price affect and positive price affect make independent contributions to the enhanced prediction of consumer behavior. This implies that price affect is a two-dimensional rather than a one-dimensional construct (see Mano 1991; Watson and Tellegen 1985). It is also in line with Honea and Dahl’s (2005) two-dimensional conceptualization of promotion affect. Still, previous research has only found an association between (i) price information, price cognitions, and consumer behavior and (ii) positive and/or neutral emotions (e.g., enjoyment or surprise). Thus, the present paper is the first to establish the relevance of both positive price affect and negative price affect.

In a more methodological vein, the present results suggest that traditional research in behavioral pricing may suffer from specification error: When the effect of price affect is ignored, the relationship between price information, price cognitions, price affect, and consumer behavior is misrepresented. More specifically, when the mediating role of price affect is denied, the direct effect of price cognitions on consumer behavior is equated with the total effect of price cognitions on consumer behavior. However, the inclusion of price affect as a mediating construct will attenuate the direct effect of price cognitions on consumer behavior. Thus, the direct effect of price cognitions on consumer behavior is overestimated when the mediating role of price affect is ignored. Overall, incorporating price affect in future research will enable behavioral pricing scholars (i) to provide a more detailed account of consumers’ processing of price information and (ii) to enhance the prediction of consumer behavior.

The results of the present research are also in line with affect evaluation and affect regulation theories (see Andrade 2005). With respect to affect evaluation, higher-level judgments are consistently biased by price affect. For example, positive price affect increases purchase intent. In this regard, the affect infusion model (Forgas 1995) also met with empirical support. Consistent with the notion that a price increase reduces the
odds of heuristic processing, price affect had a greater impact on consumer behavior at the low price level than at the high price level. Moreover, the present findings may be viewed from an affect regulation perspective. They suggest that consumers adapt their behavior in response to price information to achieve, and then savor, a state of more positive affect and/or less negative affect. For example, consumers experiencing more positive price affect reported higher willingness to spread positive word-of-mouth: Spreading positive word-of-mouth may enable consumers to maintain the salience of positive price-induced affect.

In addition, the present findings corroborate the idea of anticipatory emotions, i.e. affect experienced at the moment of decision-making (Loewenstein et al. 2001). One of the central tasks faced by consumers is to process price information, e.g. when comparing two price offers. Unsurprisingly, consumers experience affect in completing this task. Such anticipatory emotions were found to arise from consumers’ cognitive appraisal of price information. Conversely, changes in behavior reflected consumers’ efforts to cope with their anticipatory emotions resulting from the cognitive appraisal of price information. This implies that consumers experience emotions in making both high-risk decisions (e.g., smoking or long-term investments) and low-risk decisions (e.g., shopping for a flight).

Finally, the results of this paper confirm the notion that perceptions of price unfairness are associated with various negative emotions (Xia et al. 2004). Perceived price unfairness was related to more negative price affect which in turn reduced both positive word-of-mouth and purchase intent. The present results also support Xia et al.’s hypothesis that negative affect mediates the effect of perceived price unfairness on consumer behavior. The incremental validity of price affect beyond price cognitions suggests that price affect and price (un)fairness perceptions are distinct constructs.

**Practical implications.** The finding that price information is a source of affect, which in turn drives consumer behavior, poses a challenge for sellers and retailers alike. Companies may gain by creating price information that, all else being equal, translates into more positive affect and/or less negative affect. Thus, marketers may wish to learn which pieces of price information provide consumers with a more hedonic shopping (and consumption) experience. For example, Loewenstein and Prelec (1993) have demonstrated that decision-makers prefer improving sequences of outcomes to constant and deteriorating ones. Applying this finding to multi-dimensional pricing, consumers can be expected to favor a sequence of decreasing monthly in-
stallments (e.g., 40, 30, 20, 10) over a series of constant monthly payments with the same present value (e.g., 25, 25, 25, 25).

In marketing communication, companies may amplify the purchase-accelerating effect of positive price affect by communicating motive-consistent price information (e.g., rebates) with an affective rather than a cognitive focus (e.g., ‘Enjoy your rebate!’). This may increase the salience of positive price affect, which will result in higher levels of proactive consumer behavior (e.g., purchase intent).

In addition, the present findings could help inform the timing of pricing decisions. According to the goal-gradient hypothesis (see Hull 1934), affective intensity increases as a focal event (e.g., making a purchase) draws nearer. A price decrease that is communicated five minutes prior to making a purchase will hence induce higher levels of positive price affect than one that is communicated four weeks in advance. In line with this notion, a rebate offered in the purchase phase should have a larger impact on consumers’ purchase behavior than a rebate offered in the pre-purchase phase, for example.

Finally, the present results may also have implications for the design of the retail environment. Bower’s (1981) network theory of affect (i.e., mood-state congruency and mood-state dependency) suggests that motive-consistent, or positively valenced, price information (e.g., an advertised price promotion) is more accessible in memory when consumers are in a positive, rather than negative, affective state. Thus, cues in the retail environment that induce more positive affect in consumers might increase the effectiveness of advertised price promotions. Many discounters frequently launch price promotions. Yet, their relatively Spartan retail environments may elicit only very low levels of positive affect. Thus, discount retailers may benefit from such positively valenced affective cues.

**Limitations and avenues for future research**

It shall be explicitly acknowledged that the present research was limited to studying consumers’ affective responses to a price increase. Thus, future research should jointly investigate consumer reactions to a price increase and decrease. In doing so, it will be interesting to learn whether consumers’ affective responses to a monetarily equivalent price increase and decrease are in accordance with prospect theory (Kahneman and Tversky 1979). If consumers perceived shifts in relative prices as gains and losses, price increases and decreases could trigger asymmetric affective responses. The results
of such research might also advance scholarly understanding of whether loss aversion has an affective component (see, e.g., Johnson, Gächter and Herrmann 2006).

The present paper was set in the airline industry, employing a within-subjects design. Its findings should be replicated considering alternative industries, different experimental stimuli, other price levels, and a between-subjects manipulation of price information. Also, the focus was on two major price cognitions (i.e., perceived value and perceived fairness). Yet, others were excluded (e.g., price knowledge). Thus, more work is needed to assess whether the present findings will hold once other, or additional, cognitive measures are examined. Another limitation of this paper is that passive consumer behavior was conceptualized as less proactive consumer behavior (e.g., lower willingness to spread positive word-of-mouth). Thus, future research should examine whether negative price affect also predicts outcomes like negative word-of-mouth or additional search behavior, both of which are detrimental to a focal brand.

Researchers may also investigate which pieces of price information are perceived by consumers as motive-consistent and motive-inconsistent events. Options include price increases and decreases, deviations from a reference price (Mazumdar, Raj and Sinha 2005), the gestalt characteristics of multi-dimensional price profiles (see Loewenstein and Prelec 1993), various temporal formats of the pennies-a-day strategy (Gourville 1998), and (missed) price promotions (Honea and Dahl 2005), for example. To further test appraisal theory, it will be fruitful to investigate whether affective responses are also triggered by normatively irrelevant price information. Studying whether motive-consistent price information earns a price premium represents another worthwhile research endeavor.

Moreover, intensity is a defining feature of any emotion (Reisenzein 1994). Thus, a comprehensive framework of price affect must account for both the valence and intensity of price-induced emotions. In identifying variables that moderate the intensity of price affect, future research may draw on the concept of secondary appraisal (Lazarus 1991a, b). Here, coping potential is the central determinant of affective intensity. Thus, the intensity of price affect may depend on the size of a perceived change in relative prices, the target good’s substitutability, and consumers’ income, for example.

More research is also needed to assess the relationship between ad-evoked affect and price affect. Specifically, it will be fruitful to study whether both forms of marketing-induced pre-purchase affect exert a parallel influence on consumer behavior. For example, future research could examine whether price affect also predicts outcomes
like brand attitude (see Batra and Ray 1986; Brown et al. 1998; Burke and Edell 1989; Edell and Burke 1987). It will also be important to clarify if, and how, ad-induced affect and price affect interact in shaping consumer behavior.

Finally, the relationship between perceived price (un)fairness and price affect needs further investigation. To start with, an in-depth assessment of whether the two constructs are complementary or redundant is needed. In addition, Xia et al. (2004) have advocated a discrete emotions approach in linking affect to perceived price (un)fairness (see, e.g., Roseman et al. 1990). Again, this could be achieved by incorporating secondary appraisals into the conceptual framework of price affect. For example, in deriving price (un)fairness judgments, consumers are known to make attributions as to who is responsible for a certain price. Such attributions could be related to the appraisal dimension of agency (i.e., circumstance- vs. other- vs. self-caused events). The present paper hopes to spur research in these, and other, directions.

2.7 References


3 The profile effect: Consumer preferences for gestalt characteristics of multi-dimensional prices

3.1 Abstract

This paper investigates consumer preferences for gestalt characteristics of MDPs, i.e. patterns of monthly installments (e.g., 40, 30, 20, 10 vs. 25, 25, 25, 25 vs. 10, 20, 30, 40). Results of a field experiment involving $N = 1,628$ consumers in the market for luxury cars corroborate the hypothesized profile effect, suggesting that the status quo of multi-dimensional pricing is suboptimal. Consistent with a preference for improving sequences of outcomes, consumers favor decreasing (constant) monthly installments over constant (increasing) ones. Consumers holding an anti-debt attitude as opposed to a pro-debt attitude ascribe even greater value to a descending MDP profile than to a flat one. Moreover, perceived fairness, perceived value, and both positive affect as well as negative affect mediate the effect of different patterns of monthly installments on purchase intent and positive word-of-mouth. Finally, the interplay between these variables is consistent with appraisal theory. Implications are discussed.

3.2 Introduction

In multi-dimensional pricing, companies communicate prices to consumers using more than a single number (Estelami 1997; Morwitz et al. 1998). While uni-dimensional prices simply consist of a lump-sum amount (e.g., € 37,125), MDPs are quoted in terms of several price attributes. These include the magnitude of monthly installments, the duration of the repayment period, or the size of a down-payment (e.g., € 836 a month for 48 months, € 0 down). In recent years, the propensity to finance consumption has drastically increased consumers’ exposure to MDPs. For a variety of product categories—e.g., household appliances, cars, and telecommunication services—MDPs have even become the dominant form of price quotation. In the case of new automobiles, for example, with up to three out of four purchases being financed rather than prepaid, the lion’s share of advertised prices (i.e., more than 70%) is in a multi-dimensional format (Estelami). Overall, the continuous proliferation of consumer credit offers suggests that multi-dimensional pricing is a ubiquitous, yet under-researched, pricing tactic.

Multi-dimensional pricing is more than merely a communication strategy aimed at

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lowering an offer’s perceived expensiveness. The launch of finance plans (i.e., MDPs) helps companies avoid opportunity costs in the guise of foregone sales. These would otherwise be incurred because of consumers’ current, rather than permanent, liquidity constraints (see Friedman 1957). Still, research on disaggregated prices has demonstrated a substantial increase in demand as a result of moving from uni-dimensional to multi-dimensional price presentations (Gourville 1998; Morwitz et al. 1998). This is at odds with the notion that rational consumers are unaffected by how price information is communicated. It is therefore plausible to assume that efforts directed at further enhancing the attractiveness of MDPs from a consumer perspective will provide companies with an opportunity for improving their margins. To seize this opportunity, it is crucial to understand the psychology of consumer perceptions of MDPs.

Behavioral pricing research has demonstrated that consumers do not accurately evaluate difficult-to-process price information. Rather, consumers’ price evaluations systematically deviate from rational economic models incorporating discounted cash flows. Evidence for such judgmental biases comes from research on pennies-a-day pricing (Gourville 1998), price partitioning (Morwitz et al. 1998), price promotions (Della Bitta, Monroe and McGinnis 1981), unit pricing (Capon and Kuhn 1982), and MDPs themselves (Estelami 1997, 1999). Multi-dimensional pricing requires consumers to aggregate the disaggregated components of MDPs. That is, consumers have to conduct some form of arithmetic in order to compute—or verify—an offer’s underlying cost. Yet, doing the arithmetic is cognitively taxing because consumers suffer from capacity constraints of short-term memory. Also, the necessary multi-digit calculations can be quite elaborate. Finally, sellers tend to communicate non-roundable price information, e.g. € 273 a month for 36 months (Estelami 1999). Thus, multi-dimensional pricing introduces considerable cognitive effort in consumers. An effective strategy to ease one’s cognitive load is to simplify the decision-making process by resorting to a heuristic (Kahneman, Slovic and Tversky 1982). Yet, simplification strategies come at a cost: As consumers selectively focus on salient price dimensions (e.g., monthly installments) or fail to conduct all necessary arithmetic operations, their price perception accuracy and price sensitivity are undermined (Estelami 1997).

The main proposition of the present paper is the following: Consumers’ propensity to process multi-dimensional price information heuristically, focusing on only a few salient price attributes, leads them to perceive MDPs in a gestalt-like fashion. Specifically, research on how individuals evaluate sequences of events (e.g., a series of pain-
ful stimuli) has revealed that summary assessments of these sequences do not simply integrate all the components of the evaluated events. Rather, they incorporate only a few defining features (so-called gestalt characteristics) such as the peak, slope, or end of the underlying experience profile (Ariely and Carmon 2000). In addition, research on anomalies in intertemporal choice has found decision-makers to prefer improving sequences of outcomes to constant and deteriorating ones in the realm of both social and financial behavior (Loewenstein and Prelec 1993; Loewenstein and Sicherman 1991). Finally, research on mental accounting of savings and debt has demonstrated that consumers are averse to debt, thus preferring to accelerate payments (Prelec and Loewenstein 1998). The present paper attempts to integrate these strands of research in the domain of multi-dimensional pricing. Thus, it seeks to determine whether consumers favor descending MDP profiles (e.g., 40, 30, 20, 10) over flat (e.g., 25, 25, 25, 25) and ascending ones (e.g., 10, 20, 30, 40).

In doing so, the extant body of research on MDPs, summarized evaluation, intertemporal choice, and debt aversion is extended in several ways. First, this paper investigates whether the preference for improvement in the context of payments received (e.g., wages; Loewenstein and Sicherman 1991) generalizes to the domain of payments due (e.g., MDPs). Second, previous studies have analyzed consumer perceptions of MDPs within subjects and/or in a laboratory context (Estelami 1997; Herrmann and Wricke 1998). The present research surveys real consumers in the market for luxury cars using a between-subjects design. Third, summarized evaluations of MDPs are examined covering both traditional measures (e.g., purchase intent) and novel ones (e.g., affective responses and perceived fairness). This multivariate approach allows for a direct test of how consumer hedonics are affected by multi-dimensional price profiles and exposure to residual debt. In addition, it enables the current research to study the interplay between these variables in a mediational framework based on appraisal theory. Fourth, the present work seeks to identify individual difference variables (e.g., debt attitude) that moderate the appeal of different MDP profiles to consumers. Fifth, this paper probes whether the gestalt characteristics of MDPs lead consumers to make suboptimal decisions (e.g., to prefer one of two normatively equivalent MDPs), giving companies the chance to raise profits.

3.3 Conceptual background: The profile effect

Everyday experiences (e.g., vacations, hospital stays, or salary payments) develop over
time through a series of transient states (Ariely and Carmon 2000; Ariely and Zauberman 2000). The underlying experience profile is typically represented by a summary assessment (e.g., increasing wage levels over time) rather than its individual components (e.g., numerous salary payments of different magnitude at different points in time). That is, when decision-makers derive summarized evaluations, they do not combine the entirety of their actual, or anticipated, experience into an overall assessment. Instead, they extract only a few, yet highly diagnostic, features (i.e., gestalt characteristics) from an experience profile. Two types of gestalt characteristics are the prime drivers of summarized evaluations (see Ariely and Carmon for a synopsis). First, individuals are particularly sensitive to how an experience unfolds through time, responding to both the trend of a profile (Ariely 1998; Loewenstein and Prelec 1993) and its rate of change (Hsee and Abelson 1991). Second, summary assessments are biased by the intensity of an experience profile at key points in time, e.g. peak or end (Ariely; Varey and Kahneman 1992). In sum, the profile of a series of experiential stimuli has a large impact on the overall evaluation of the underlying experience. This evaluation, in turn, provides important input to the decision whether to undertake, or repeat, the experience (Ariely and Zauberman).

When outcomes are framed as a sequence of events rather than single events, individuals tend to put the best outcomes off until last. That is, they favor utility levels that improve over time. This is at odds with traditional discounting models built on the notion of the time value of money (Loewenstein and Prelec 1993). Evidence for negative time preference, i.e. a preference for improving sequences of outcomes, has been found in a variety of domains such as pain (Ariely 1998; Kahneman, Fredrickson, Schreiber and Redelmeier 1993), affective episodes (Fredrickson and Kahneman 1993; Varey and Kahneman 1992), TV ads (Baumgartner, Sujan and Padget 1997), service quality (Ariely and Zauberman 2003), income (Chapman 1996; Loewenstein and Sicherman 1991), and social behavior (Loewenstein and Prelec 1991, 1993).

Yet, preferences for sequences of outcomes have not been studied with MDPs. This is noteworthy because the case for consumers treating equidistantly spaced payments due as a sequence is particularly compelling (see Ariely and Zauberman 2000). In a similar vein, the concreteness principle (Slovic 1972) suggests that boundedly rational consumers will overweight “information that is explicitly displayed in the stimulus object” (e.g., the profile formed by a sequence of monthly installments), whereas “information that has to be […] inferred from the display […] will be discounted or ig-
nored” (e.g., an MDP’s present value) (Payne, Bettman and Johnson 1993, p. 49). Therefore, a profile effect of MDPs is proposed: Consumers will perceive monthly installments that decrease (increase) over the repayment period as an improving (deteriorating) sequence of outcomes. This will lead them to prefer a descending (flat) MDP profile to a flat (ascending) one. In turn, several arguments derived from literature on (i) anomalies in intertemporal choice, (ii) mental accounting, and (iii) standard microeconomics are presented to elaborate the profile effect.

**Intertemporal choice.** Loewenstein and Prelec (1993) have offered three accounts of decision-makers’ preference for improving sequences of outcomes: Savoring and dread, adaptation and loss aversion as well as primacy and recency effects. First, with respect to savoring and dread, a descending (ascending) MDP profile expands (shrinks) consumers’ discretionary income across time.Descending MDP profiles (e.g., 40, 30, 20, 10) hence enable consumers to save the best outcomes (i.e., larger amounts of discretionary income) until the end of the repayment period. Conversely, ascending MDP profiles (e.g., 10, 20, 30, 40) prevent consumers from getting undesirable outcomes over with quickly (i.e., larger monthly installments eating into their discretionary income) (see Loewenstein 1987). Thus, savoring and dread suggest that consumers prefer descending (flat) MDP profiles to flat (ascending) ones.

Second, as to adaptation and loss aversion, Loewenstein and Sicherman (1991) have theorized that improving (deteriorating) sequences of outcomes, e.g. increasing (decreasing) wage levels over time, are perceived as a series of gains (losses). Drawing on adaptation-level theory (Helson 1964) and loss aversion (Kahneman and Tversky 1979), the authors argue that consumers adapt to their current level of consumption and seek to realize (avoid) positive (negative) departures from that level. In the context of multi-dimensional pricing, the underlying anchoring-and-adjustment mechanism (Kahneman et al. 1982) suggests that descending (ascending) MDP profiles create a series of favorable (unfavorable) backward-looking contrasts. This implies that consumers will perceive monthly installments that decrease (increase) over time as a sequence of gains (losses). Hence the preference for descending MDP profiles.

Third, with regard to primacy and recency effects (see Miller and Campbell 1959), Varey and Kahneman (1992) have posited that decision-makers naturally adopt a retrospective view in evaluating sequences of outcomes. Similarly, Ross and Simonson (1991) have noted that, after the (anticipated) conclusion of a sequence, the final outcome is most salient. The findings of the latter authors suggest that individuals have a
stable preference for happy, or at least hopeful, endings. In the context of multi-dimensional pricing, decreasing (increasing) monthly installments end on a positive (negative) note, i.e. the lowest (highest) payment in the sequence, e.g. 10 (40). Thus, recency effects lead consumers to favor descending (flat) MDP profiles over flat (ascending) ones. It is also conceivable that recency effects and primacy effects co-occur. In this instance, primacy effects will further increase (decrease) the appeal of descending (ascending) MDP profiles by highlighting the profile information inherent in such finance offers, e.g. 40 vs. 10 (10 vs. 40).

*Mental accounting*. Rational choice theory predicts that consumers prefer to make payments later rather than sooner because deferred payments have lower present value. Yet, copious evidence suggests that individuals are averse to debt (Lea, Webley and Levine 1993; Livingstone and Lunt 1992; Prelec and Loewenstein 1998; Thaler 1992). Specifically, Prelec and Loewenstein champion the view that consumers distinguish between the hedonic impact of payments and consumption. The authors have argued that the disutility of making payments undermines the utility derived from consumption. For example, the pain of making monthly payments to amortize a car loan detracts from the pleasure of driving one’s sedan. It follows that debt is an unpleasant experience: Consumers will try to get it over with quickly when it cannot be avoided. From this perspective, the preference for prepayment—or generally: payment acceleration—is driven by a simple hedonic rule (e.g., ‘seeking pleasure, avoiding pain’) (see Prelec and Loewenstein).

Debt aversion follows from Prelec and Loewenstein’s (1998) mental accounting model of savings and debt. Under the mental accounting rules of prospective accounting and prorating, the sum of residual payments (i.e., \(\Sigma_{t \geq b} p_t\); see Equations [7a, b] in their paper, p. 12) determines the hedonic appeal of both consumption and payment experience, *ceteris paribus*. When these experience profiles are plotted over the repayment period, the area under the curve indicates that a descending (ascending) MDP profile will enhance (impair) both consumption and payment experience relative to a flat one. The reason is the following: At any given point in time after the first monthly payment has been made, the sum of residual payments for multi-dimensional price offers with the same present value is smallest (largest) for descending (ascending) MDP profiles, e.g. 40, 30, 20, 10 (10, 20, 30, 40). Flat ones, e.g. 25, 25, 25, 25, fall in between. When consumers evaluate a given MDP profile, they will likely try to anticipate how that MDP profile is going to affect their consumption and payment experi-
ence over the repayment period. Thus, debt aversion leads consumers to favor descending (flat) MDP profiles over flat (ascending) ones.

*Microeconomics.* Finally, three key findings from standard microeconomics make the case for the profile effect. First, decision-makers are known to respond to the marginal cost of economic activities (see, e.g., Mankiw 2007). With usage being constant over the repayment period, a series of descending (ascending) monthly installments may result in perceptions of decreasing (increasing) marginal costs of consumption. It is plausible to assume that decreasing marginal costs are both more pleasurable—and more conducive to prolonged consumption—than increasing ones. Therefore, consumers will reveal a preference for sequences of descending monthly installments.

Second, individuals dislike inflation (e.g., Di Tella, MacCulloch and Oswald 2001). Ascending (descending) MDP profiles—e.g., 10, 20, 30, 40 (40, 30, 20, 10)—may give rise to perceptions of increasing (decreasing) price levels across time. Such inflationary (deflationary) tendencies are perceived as shrinking (expanding) real income over the repayment period. Thus, consumers will be particularly averse to multi-dimensional price offers involving a series of ascending monthly installments.

Third, disposable income usually increases over time—at least until retirement (Friedman 1957). In this regard, Chapman (1996) has found decision-makers’ preference for improving sequences of outcomes to be moderated by how a particular sequence typically evolves: Individuals expected improving (deteriorating) sequences of income (health) and preferred such sequences to deteriorating (improving) ones. In the context of multi-dimensional pricing, a descending (ascending) MDP profile expands (shrinks) discretionary income across time, thereby evoking perceptions of a typical (atypical) income trajectory. Consequently, consumers will respond most (least) favorably to a series of descending (ascending) monthly installments.

### 3.4 Hypothesis development

**Perceived fairness**

Perceived price unfairness may result in severe negative consequences for a seller, e.g. customers defecting to rivals. Thus, companies have a vital interest in creating price offers (e.g., MDPs) that are not perceived as unfair (Xia et al. 2004). Equity theory (Adams 1965) proposes that perceptions of (un)fairness in an exchange relationship (e.g., between companies and consumers) are induced when a person (e.g., a consumer) compares his or her outcome with the outcomes of reference others (e.g., other
consumers). This implies that price fairness judgments involve a comparison of a price (e.g., a descending MDP profile) with a pertinent standard (e.g., a flat MDP profile). When outcomes (e.g., MDP profiles) differ under conditions of high transaction similarity (e.g., identical cars with the same list price), price (un)fairness judgments will arise. Yet, these judgments are biased by consumers’ self-interest, i.e. the desire to maximize their own benefits (Oliver and Swan 1989). In the present context, it is plausible to assume that a flat MDP profile represents a natural reference transaction. Thus, the profile effect leads consumers to construe a descending (ascending) [flat] MDP profile as an instance of advantaged inequality (disadvantaged inequality) [equality] (see Xia et al.). This is because a descending (ascending) MDP profile is associated with higher (lower) expected benefits than a flat one such as a more (less) pleasant consumption and payment experience. Consumers will hence judge a descending (ascending) MDP profile as fairer (less fair) than a flat one.

In addition, Xia et al. (2004) have argued that “both the price offered and the rationale for offering a certain price may lead to perceptions of price unfairness” (p. 1). In trying to infer a seller’s motive for setting a certain (multi-dimensional) price, consumers resort to social norms as well as their marketplace meta-knowledge, e.g. concerning companies’ pricing tactics (Bolton, Warlop and Alba 2004). These, in turn, shape price (un)fairness judgments. In the context of multi-dimensional pricing, consumers may interpret an ascending MDP profile as a marketing ploy aimed at enticing them with low initial monthly installments that later turn out to be much higher. As a result, a negative seller motive is inferred. Conversely, consumers may view a descending MDP profile as a signal for a company that cares in the sense that their debt aversion is acknowledged, prices yield a series of consumption-related gains, and shoppers are protected against unpleasant surprises. As a consequence, consumers will infer a positive seller motive. Thus:

**H8**: Consumers will judge a descending (ascending) MDP profile as fairer (less fair) than a flat one.

**Perceived value**

Value perceptions are a central determinant of buying behavior and product choice (Zeithaml 1988). Perceived value reflects the overall assessment of the utility of a transaction. It emerges from consumers’ mental trade-offs between (i) what is gained
from a purchase (e.g., perceived quality) and (ii) what is sacrificed by paying the price (e.g., money and/or time). Thaler (1985) has proposed a behavioral refinement of the value concept. The author argues that perceptions of value are driven by both acquisition utility, i.e. “the value of the good received compared to its outlay”, and transaction utility, i.e. “the perceived merits of the deal” (p. 205). Specifically, transaction utility results from a comparison between a selling price (e.g., a descending MDP profile) and a reference price (e.g., a flat MDP profile): It denotes the psychological benefits obtained from taking advantage of the financial terms of a price offer (Grewal, Monroe and Krishnan 1998). This implies that MDPs with the same present value—but different profiles—will affect perceived value through changes in transaction utility rather than acquisition utility. According to the profile effect, descending (ascending) MDP profiles provide consumers with higher (lower) expected benefits than flat ones because they evoke perceptions of a typical (atypical) income trajectory, for example. Therefore:

H9: Consumers will perceive a finance offer involving decreasing (increasing) monthly installments as more (less) valuable than a finance offer involving constant monthly installments.

Purchase intent
Purchase intent is defined as the likelihood that a consumer intends to purchase a given product or service (Grewal et al. 1998). It represents a powerful predictor of purchase behavior (Morwitz and Schmittlein 1992). Ceteris paribus, purchase intent is positively related to perceived value (e.g., Della Bitta et al. 1981; Zeithaml 1988). As stated in H9, descending (ascending) MDP profiles will induce perceptions of higher (lower) value in consumers than flat ones. Thus:

H10: A descending (ascending) MDP profile will lead to higher (lower) purchase intent than a flat one.

Positive word-of-mouth
Word-of-mouth behavior is one of the key responses that can emerge from a company’s efforts directed at forming relations with consumers, e.g. offering customer status by accepting the financial terms of a particular transaction (Brown, Barry, Dacin
and Gunst 2005). Conceptually, word-of-mouth is a short-term outcome of consumers’ liking for—or (anticipated) satisfaction with—marketing offers, e.g. MDP profiles (see Bowman and Narayandas 2001). The valence of word-of-mouth can be neutral, positive, or negative. Specifically, positive (negative) word-of-mouth is a response to pleasant (unpleasant) experiences or satisfaction (dissatisfaction) (Herr, Kardes and Kim 1991). The profile effect predicts that descending (ascending) MDP profiles are more (less) attractive to consumers than flat ones because they yield a series of consumption-related gains (losses), for example. Therefore:

**H11**: A descending (ascending) MDP profile will result in higher (lower) willingness to spread positive word-of-mouth about a finance offer than a flat one.

**Affective responses and mediational effects**

*Affective responses*. Carver and Scheier’s (1990) cybernetic control model maintains that affect results from a comparison of one’s rate of progress (e.g., making monthly payments that change over time) toward a goal (e.g., amortizing a car loan) with a pertinent criterion (e.g., constant payments). When perceived progress exceeds (falls short of) the criterion—e.g., in the case of a descending (ascending) MDP profile—positive (negative) affect will ensue. Appraisal theory (Lazarus 1991a, b; Roseman et al. 1990) provides additional theoretical support for the notion of MDP profiles triggering affective responses. Events appraised as beneficial (harmful), or motive-consistent (motive-inconsistent), will give rise to positive (negative) emotions. These, in turn, are associated with proactive (passive) behavior, e.g. higher (lower) purchase intent. According to the profile effect, a descending (ascending) MDP profile is consistent (inconsistent) with several consumer motives. These include, for example, the desire to dispose of increasing levels of discretionary income over time (Chapman 1996; Loewenstein and Sicherman 1991) or to put the mental account for a financed product into the black as quickly as possible (Prelec and Loewenstein 1998; Thaler 1992). Thus, a descending (ascending) MDP profile will induce more (less) positive affect and less (more) negative affect in consumers than a flat one.

*Mediational effects*. Appraisal theory not only establishes a contingency between events and emotions as well as emotions and behavior. It also explicates the processes by which events translate into behavior (Lazarus 1991a, b; Roseman et al. 1990). The perception of an event (e.g., a seller offering a descending as opposed to a flat MDP
profile) will give rise to cognitions (e.g., higher perceived value). Specifically, it is the
cognitive appraisal of an event, rather than the event itself, that generates emotions
(e.g., more positive affect). Thus, cognitions (e.g., perceived value) will mediate the
effect of events (e.g., offering a descending rather than a flat MDP profile) on con-
sumers’ emotional responses (i.e., positive affect and negative affect). Also, neither
events nor cognitions are presumed to directly alter behavior. Rather, a decision-
maker’s effort to cope with his or her emotions (e.g., more negative affect) resulting
from the cognitive appraisal of an event (e.g., perceived unfairness due to an ascending
MDP profile) leads to changes in behavior (e.g., lower purchase intent). Thus, emo-
tional responses (i.e., positive affect and negative affect) will mediate the effect of
cognitions (e.g., perceived value) on consumer behavior (e.g., purchase intent). The
above observations are encapsulated in the following hypotheses:

H12: A descending (ascending) MDP profile will induce more (less) positive
affect and less (more) negative affect in consumers than a flat one.

H13: Positive (negative) affect will be positively (negatively) related to per-
ceived fairness, perceived value, purchase intent, and positive word-of-mouth.

H14: Perceived fairness and perceived value will mediate the effect of an as-
cending vs. flat MDP profile as well as a descending vs. flat MDP profile on
both positive affect and negative affect.

H15: Positive affect and negative affect will mediate the effect of perceived
fairness and perceived value on purchase intent and positive word-of-mouth.

Consumers’ choices between financing and prepayment
MDPs help sellers avoid opportunity costs (i.e., foregone sales): When a car is
priced at € 37,125, MDPs enable companies to tap a larger pool of potential buy-
ers—including those with a current disposable income below € 37,125. It follows
that offering a more (less) attractive MDP enhances (diminishes) the relative ap-
peal of financing. This increases (decreases) the probability that consumers inter-
ested in a given product or service, yet incapable of prepaying, will make a pur-
chase. The profile effect states that decreasing (increasing) monthly installments
are more (less) attractive to consumers than constant ones because they are associated with a more (less) pleasant consumption and payment experience, for example. Thus:

**H16**: Compared with a flat MDP profile, a descending (ascending) MDP profile will increase (decrease) the probability that consumers prefer financing to prepayment.

**Moderators of the profile effect**

According to the profile effect, consumers will generally prefer descending (flat) MDP profiles to flat (ascending) ones. Yet, individual difference variables, i.e. (i) current income, (ii) financial expectations, and (iii) debt attitude, can be expected to moderate the appeal of different MDP profiles to consumers.

*Current income.* At the beginning of the repayment period, descending (ascending) MDP profiles require consumers to allocate high (low) amounts of their current income to loan amortization. However, high initial monthly installments may be beyond the means of low-income consumers. Thus, consumers with high current income will respond more (less) favorably to a descending (ascending) vs. flat MDP profile than those with low current income.

*Financial expectations.* Descending (ascending) MDP profiles require consumers to allocate decreasing (increasing) amounts of their income to loan amortization across time. Yet, a given MDP profile will be unattractive unless it matches a consumer’s (anticipated) income trajectory over the repayment period. Thus, consumers who are financially pessimistic, expecting decreasing income levels over the medium run, will respond more (less) favorably to a descending (ascending) vs. flat MDP profile than their financially optimistic peers.

*Debt attitude.* Research on the economic psychology of debt has shown that attitude toward debt predicts indebtedness (e.g., Lea et al. 1993; Lea, Webley and Walker 1995; Livingstone and Lunt 1992). A permissive attitude toward being in debt is associated with higher levels of actual debt. In the present context, different MDP profiles imply different levels of residual debt: At any given point in time after the first monthly payment has been made, the sum of residual debt for multi-dimensional price offers with the same present value is smallest (largest) for descending (ascending) MDP profiles, e.g. 40, 30, 20, 10 (10, 20, 30, 40). Constant ones, e.g. 25, 25, 25, 25,
fall in between. Consumers with an anti-debt attitude will therefore respond more (less) favorably to a descending (ascending) vs. flat MDP profile than those holding a pro-debt attitude. Overall, the following hypothesis is suggested:

**H17**: The profile effect will be more pronounced for consumers disposing of high (vs. low) current income (H17a), having a pessimistic (vs. optimistic) outlook on income development over the medium run (H17b), and expressing an anti-debt (vs. pro-debt) attitude (H17c).

### 3.5 Methodology

#### Sample

The sample consisted of $N = 1,628$ consumers in the market for luxury cars participating in an online market research study on finance offers. 93.3% of the participants were male and 84.2% were between the ages of 21 and 50. Moreover, 48.9% of the consumers owned a vehicle of the carmaker conducting the online survey, while 58.1% had experience with car loans. Self-reported median disposable income was between €3,000 and €4,999 per month.

**Independent variable**

MDP profile was the independent variable of the present study. To probe the profile effect, this factor was varied across three levels, namely (i) ascending profile (i.e., an increase in average monthly installment of €200/year), (ii) flat profile (i.e., constant monthly installments), and (iii) descending profile (i.e., a decrease in average monthly installment of €200/year).

**Dependent and mediating variables**

The operationalization and reliability (i.e., coefficient alpha) of the dependent, mediating, and moderating variables is given in Appendix A. Unless otherwise detailed, 7-point Likert scales were used.

*Perceived fairness*. A three-item measure adopted from Vaidyanathan and Aggarwal (2003) was used to gauge consumers’ perceived fairness of a given MDP.

*Perceived value*. Three items based on Dodds, Monroe and Grewal’s (1991) study captured consumers’ perceptions of value.

*Affective responses*. Positive (negative) affect, i.e. happiness/optimism (an-
get/discontent), were measured using five (two) items featured in Richins (1997).

*Purchase intent.* Two items from Dodds et al. were used to assess purchase intent.

*Positive word-of-mouth.* Willingness to spread positive word-of-mouth was gauged employing three items that were taken from Zeithaml, Berry and Parasuraman (1996).

*Consumer choice.* Consumers chose between a particular MDP and prepayment.

**Moderating variables**

*Current income.* Two measures of consumers’ current income were derived. First, actual current income was operationalized through consumers’ self-reported monthly disposable income. Second, two items based on Mittal’s (1994) study were used to measure respondents’ perceived current income, i.e. a consumer’s assessment of his or her current budget constraints.

*Financial expectations.* Three items based on the work of Brown, Garino, Taylor and Price (2005) as well as Levedahl (1980) captured consumers’ financial expectations, i.e. their anticipated income development over the medium run (e.g., over the next five years).

*Debt attitude.* Debt attitude was measured using 13 items adapted from Lea et al. (1995).

**Procedure and experimental stimuli**

*Procedure.* Consumers visiting the homepage of a European carmaker were asked to participate in an online market research study on finance offers for a station wagon. Participants were randomly assigned to one of the three conditions (MDP profile: ascending profile vs. flat profile vs. descending profile) in a between-subjects design. The scenarios provided consumers with an interior and exterior view of the car, its features (e.g., engine and optional equipment), its list price (i.e., € 37,125), and a graphical display of the multi-dimensional price offer, which was experimentally manipulated. Consumers responded to several questions aimed at gathering information on the dependent, mediating, moderating, and socio-demographic variables. In addition, they completed a manipulation check. At the end of the survey, consumers were thanked. They also had the opportunity to participate in a lottery giving them the chance to win a sports bag.

*Experimental stimuli.* The experimental stimuli, shown in Appendix B, were designed to rule out possible confounds of the profile effect. First, rational choice theory
predicts that consumers prefer MDPs with lower present value to MDPs with higher present value. Thus, at a discount rate of 3.9% p.a., employing the actual/365 method, all MDP profiles have a present value of € 37,125 (±0.1% or less due to rounding). Second, the classical multiplication problem (e.g., $4 \times 3 \times 2 \times 1$ vs. $1 \times 2 \times 3 \times 4$; Kahneman et al. 1982) suggests that consumers may perceive a descending MDP profile (e.g., 40, 30, 20, 10) as more expensive than its ascending, yet normatively equivalent, counterpart (e.g., 10, 20, 30, 40). Consumers were hence given the discount rate, the list price, the present value of the MDP as well as the information that the latter two are identical to reduce the confounding influence of perceived expensiveness. Third, the velocity at which outcomes change over time is known to affect summarized evaluations of extended experiences (Hsee and Abelson 1991). Thus, the rate at which average monthly installments changed over the repayment period was identical in magnitude (i.e., ± € 200/year). Fourth, consumers might infer the appeal of a non-flat MDP profile from the number of changes in monthly installments. Accordingly, both the ascending and descending MDP profile featured four different levels of monthly installments that each lasted for twelve months, implying three jumps and plunges, respectively. Finally, the ease with which multi-dimensional price information is processed may shape consumer preferences for MDPs (see Estelami 1997, 1999). Thus, all MDPs consist of non-roundable price information, e.g. € 836 a month for 48 months.

### 3.6 Results

**Manipulation check**

A manipulation check showed that consumers perceived a series of constant monthly installments as a natural reference transaction. They rated the flat MDP profile as more familiar than the ascending and descending one, both $\Delta M$s $\geq 1.98$, both $t$s $\geq 18.93$, both $p$s = .000. A 7-point Likert scale anchored at “novel” and “familiar” was used.

**Consumer evaluations of different MDP profiles**

In a first step of testing H8 thru H12, a one-way MANOVA was performed. The result of Bartlett’s test of sphericity, $\chi^2(20) = 4,541.31$, $p = .000$, indicated sufficient correlation among the dependent measures. Thus, MANOVA was appropriate for analyzing the present data. Descriptive statistics for the dependent, mediating, and moderating variables are provided in Table 8.
Table 8. Descriptive statistics for dependent, mediating, and moderating variables.

<table>
<thead>
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<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Fairness</td>
<td>4.04</td>
<td>1.64</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived Value</td>
<td>4.25</td>
<td>1.25</td>
<td>.32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive Affect</td>
<td>3.04</td>
<td>1.48</td>
<td>.55</td>
<td>.40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative Affect</td>
<td>3.43</td>
<td>1.72</td>
<td>−.60</td>
<td>−.33</td>
<td>−.52</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purchasing Intent</td>
<td>3.84</td>
<td>1.93</td>
<td>.52</td>
<td>.48</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive Word-of-Mouth</td>
<td>3.74</td>
<td>1.97</td>
<td>.32</td>
<td>.48</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actual Current Income</td>
<td>3.00</td>
<td>1.03</td>
<td>.01</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived Current Income</td>
<td>5.00</td>
<td>1.63</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial Expectations</td>
<td>4.76</td>
<td>1.73</td>
<td>.09</td>
<td>.11</td>
<td>−.09</td>
<td>.07</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Debt Attitude</td>
<td>4.27</td>
<td>1.16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. Means (M), standard deviations (SD), and Pearson correlations are reported. For consumer choice, Spearman correlations were calculated (unless otherwise denoted).

Table 8. Descriptive statistics for dependent, mediating, and moderating variables.
Figure 6. The effect of different MDP profiles on consumer behavior.

Figure 6 illustrates the effect of different MDP profiles on consumer behavior. As shown in Table 9, MDP profile yielded a multivariate main effect. Thus, the vectors of consumers’ mean scores on the dependent variables were not equivalent across the three experimental conditions. This finding was confirmed at the univariate level, all \( ps \leq .027 \).
Table 9. MANOVA results for MDP profile.

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Multivariate $F$</th>
<th>Univariate $F$</th>
<th>df</th>
<th>$p$</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDP Profile</td>
<td>14.38*</td>
<td></td>
<td>12, 3,240</td>
<td>.000</td>
<td>.051</td>
</tr>
<tr>
<td>Perceived Fairness</td>
<td>63.24</td>
<td>2, 1625</td>
<td>.000</td>
<td>.072</td>
<td></td>
</tr>
<tr>
<td>Perceived Value</td>
<td>3.62</td>
<td>2, 1625</td>
<td>.027</td>
<td>.044</td>
<td></td>
</tr>
<tr>
<td>Positive Affect</td>
<td>24.99</td>
<td>2, 1625</td>
<td>.000</td>
<td>.030</td>
<td></td>
</tr>
<tr>
<td>Negative Affect</td>
<td>24.19</td>
<td>2, 1625</td>
<td>.000</td>
<td>.029</td>
<td></td>
</tr>
<tr>
<td>Purchase Intent</td>
<td>17.55</td>
<td>2, 1625</td>
<td>.000</td>
<td>.021</td>
<td></td>
</tr>
<tr>
<td>Positive Word-of-Mouth</td>
<td>22.96</td>
<td>2, 1625</td>
<td>.000</td>
<td>.027</td>
<td></td>
</tr>
</tbody>
</table>

* Based on Wilks’ lambda = .901.

In a second step, two *a priori* contrasts were calculated. Testing the profile effect involves a comparison between (i) the ascending and the flat condition as well as (ii) the descending and the flat condition. Given the set of directed hypotheses concerning the effect of different MDP profiles on consumer behavior, one-sided $t$-tests were performed. The results of this planned comparison analysis are reported in Table 10.

Table 10. Planned comparison analysis for the profile effect.

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Ascending vs. Flat MDP Profile</th>
<th>Descending vs. Flat MDP Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Fairness</td>
<td>$\Delta = -.98$</td>
<td>1,070</td>
</tr>
<tr>
<td>Perceived Value</td>
<td>$\Delta = .12^+$</td>
<td>1,070</td>
</tr>
<tr>
<td>Positive Affect</td>
<td>$\Delta = -.40$</td>
<td>1,070</td>
</tr>
<tr>
<td>Negative Affect</td>
<td>$\Delta = .47$</td>
<td>1,070</td>
</tr>
<tr>
<td>Purchase Intent</td>
<td>$\Delta = -.39$</td>
<td>1,043*</td>
</tr>
<tr>
<td>Positive Word-of-Mouth</td>
<td>$\Delta = -.50$</td>
<td>1,070</td>
</tr>
</tbody>
</table>

**Note.** The mean response for the flat MDP profile was subtracted from the mean response for the ascending and descending MDP profile, respectively. All $p$-values are one-tailed.

$^+$ The effects, while marginally significant and insignificant, respectively, were not in the hypothesized direction.

* Equality of error variances not assumed.

**Perceived fairness.** Consumers perceived the ascending MDP profile as less fair than its flat counterpart. However, they did not judge the descending MDP profile as fairer than a series of constant monthly installments ($p = .120$). In sum, H8 was partially corroborated.

**Perceived value.** The descending MDP profile induced perceptions of higher value in consumers than the flat one. Yet, offering an ascending rather than a flat MDP profile did not undermine perceived value ($p = .067$). Thus, H9 also met with partial em-
pirical support.

*Purchase intent.* The descending (ascending) MDP profile led consumers to report higher (lower) purchase intent than the flat one. Therefore, H10 was corroborated.

*Positive word-of-mouth.* The descending (ascending) MDP profile resulted in higher (lower) willingness to spread positive word-of-mouth about a finance offer than the flat one. Thus, H11 was confirmed.

*Affective responses.* The descending (ascending) MDP profile induced more (less) positive affect and less (more) negative affect in consumers than the flat one, thereby corroborating H12.

**Consumers’ choices between financing and prepayment**

In a first step of testing H16, the 3 (experimental condition: ascending profile vs. flat profile vs. descending profile) × 2 (consumer choice: financing vs. prepayment) cross-tabulation was analyzed. It is depicted in Table 11. A $\chi^2$-test revealed that the proportions of consumers favoring financing over prepayment differed across the three experimental conditions, $\chi^2(2) = 29.78, p = .000$.

**Table 11. Consumers’ choices between financing and prepayment as a function of MDP profile.**

<table>
<thead>
<tr>
<th>Consumer Choice</th>
<th>Experimental Condition (= MDP Profile)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ascending</td>
</tr>
<tr>
<td>Financing (= MDP)</td>
<td>192 (33.7%)</td>
</tr>
<tr>
<td>Prepayment</td>
<td>378 (66.3%)</td>
</tr>
<tr>
<td>Total</td>
<td>570 (100%)</td>
</tr>
</tbody>
</table>

*Note.* Column percentages are reported.

In a second step, two one-sided $\chi^2$-tests were performed. This was done to examine whether a seller’s decision to offer a descending (ascending) MDP profile rather than a flat one increases (decreases) the choice probability for financing. The percentages of consumers who opted for financing were equivalent in the flat condition (45.4%) and in the descending condition (49.1%), $\chi^2(1) = 1.44, p = .116$. Consistent with H16, the proportion of consumers who favored financing over prepayment was smaller in the ascending condition (33.7%) than in the flat condition (45.4%), $\chi^2(1) = 15.42, p = .000$. Overall, H16 was partially confirmed.
Moderators of the profile effect

In a first step of testing H17, consumers were divided into two groups based on a median split of their scores on the four moderating variables. The resulting factors were combined with MDP profile to form two-way factorial designs. In a second step, eight 2 (MDP profile: ascending/descending profile vs. flat profile) × 2 (moderator: level 1 vs. level 2) MANOVAs were run—each four comparing the flat condition with the ascending and descending condition, respectively. Multivariate interactions were assessed based on Wilks’ lambda. In addition, eight binary logistic regressions were estimated to investigate whether consumers’ choices between financing and prepayment were moderated by the above individual difference variables. Specifically, the binary outcome variable (i.e., the choice between a particular MDP = 1 and prepayment = 0) was regressed on three predictors, namely (i) a condition, or scenario, dummy variable (e.g., descending scenario = 1 vs. flat scenario = 0), (ii) a moderator dummy variable (e.g., anti-debt attitude = 1 vs. pro-debt attitude = 0), and (iii) the interaction between these two dummy variables.

Current income. Low (high) actual current income was operationalized by a self-reported monthly disposable income of less than € 3,000 (46.5%) (€ 3,000 or more [53.5%]). No multivariate interactions were detected, both $F$s ≤ 1.08, both $p$s ≥ .374. With the exception of two marginally significant interactions, this result was confirmed at the univariate level, all $F$s ≤ 2.51, all $p$s ≥ .113. That is, compared with the ascending condition, the increase in perceived fairness in the flat condition was larger for high-income consumers ($\Delta M = 1.16$) than for their low-income peers ($\Delta M = .79$), $F(1, 786) = 2.77$, $p = .096$. This finding is consistent with H17a. Also, compared with the flat condition, the increase in willingness to spread positive word-of-mouth in the descending condition was larger for consumers reporting low income ($\Delta M = .46$) than for those with high income ($\Delta M = .01$), $F(1, 780) = 2.89$, $p = .090$. Yet, this finding is at odds with H17a. Consumers’ choices between financing and prepayment were not moderated by their self-reported monthly disposable income, both $\exp(\beta)$s ≤ 1.40, both $p$s ≥ .254.

Perceived current income failed to moderate consumer evaluations of different MDP profiles. This was true at the multivariate level, both $F$s ≤ .79, both $p$s ≥ .577, and at the univariate level, all $F$s ≤ 2.32, all $p$s ≥ .128. Consumers’ perceived budget constraints also failed to moderate their choices between financing and prepayment, both $\exp(\beta)$s ≤ 1.13, both $p$s ≥ .636. Overall, given the weak and contradictory evi-
dence, H17a was not confirmed.

*Financial expectations.* At the multivariate level, consumers’ financial expectations did not moderate their evaluations of different MDP profiles, both $F$s $\leq 1.20$, both $p$s $\geq .305$. With the exception of a marginally significant interaction for perceived value, this result was confirmed at the univariate level, all $F$s $\leq 2.05$, all $p$s $\geq .153$. That is, compared with the flat condition, the increase in perceived value in the descending condition was larger for consumers with an optimistic outlook on income development over the medium run ($\Delta M = .36$) than for their more pessimistic peers ($\Delta M = .08$), $F(1, 1,054) = 3.42, p = .065$. This finding is inconsistent with H17b, however. Consumers’ choices between financing and prepayment were not moderated by their financial expectations, both $\exp(\beta)$s $\leq 1.33$, both $p$s $\geq .258$. In sum, H17b was not corroborated.

**Figure 7.** Debt attitude as a moderator of the effect of a descending vs. flat MDP profile on perceived value and positive affect.

*Debt attitude.* At the multivariate level, consumers’ debt attitude failed to moderate their evaluations of different MDP profiles, both $F$s $\leq .95$, both $p$s $\geq .457$. With two exceptions, this finding was confirmed at the univariate level, all $F$s $\leq 1.98$, all $p$s $\geq .160$. The two interactions are illustrated in Figure 7. Compared with the flat condition, the increase in perceived value in the descending condition was larger for consumers holding an anti-debt attitude ($\Delta M = .35$) than for those with a pro-debt attitude ($\Delta M = .05$), $F(1, 1,054) = 3.88, p = .049$. Similarly, the univariate interaction for positive affect achieved marginal significance. Specifically, compared with the flat condition, the
increase in positive affect in the descending condition was larger for consumers with an anti-debt attitude ($\Delta M = .36$) as opposed to a pro-debt attitude ($\Delta M = .05$), $F(1, 1,054) = 2.75, p = .097$. These two findings are consistent with H17c. Based on the results of the binary logistic regression analysis, consumers’ choices between financing and prepayment were not moderated by their debt attitude, both $\exp(\beta)$s $\geq .75$, both $ps \geq .250$. Yet, a supplementary analysis that considered choices between financing and prepayment separately for consumers with a pro-debt attitude and an anti-debt attitude found evidence of a moderating effect. The general pattern of choices in the context of the descending vs. flat condition (see Table 4) merely held for consumers with a pro-debt attitude, $\chi^2(1) = .02, p = .438$ (one-tailed). By contrast, consumers expressing an anti-debt attitude chose financing more often in the descending condition (38.6%) than in the flat condition (31.3%), $\chi^2(1) = 3.21, p = .037$ (one-tailed). Overall, H17c was partially confirmed.

**Mediational effects**

In testing H13, H14, and H15, two SEMs were estimated. In SEM-5 (see Figure 8), purchase intent and positive word-of-mouth were regressed on two dummy variables representing a seller’s decision to offer an ascending and descending MDP profile, respectively, rather than a flat one. Perceived fairness, perceived value, positive affect, and negative affect served as mediators. In SEM-6 (see Figure 9), the above variables were related to each other in accordance with appraisal theory. The rationale for estimating two SEMs is the following: SEM-5 was run to understand the generative mechanisms (i.e., changes in cognition and affect) through which different MDP profiles exert their causal influence on consumer behavior (see Baron and Kenny 1986). SEM-6 was estimated to test appraisal theory in the domain of multi-dimensional pricing. It should be noted that SEM-6 is unfit to provide valid insights into the generative mechanisms. The reason is the following: The direct effects of price information on positive affect and negative affect will likely be attenuated by the inclusion of the cognitive mediators. Analogously, the direct effects of consumers’ cognitive responses on consumer behavior will likely be attenuated by the inclusion of the affective mediators. Yet, in a mediation analysis examining the above generative mechanisms, these direct effects represent indirect effects, i.e. the associations between independent variables and mediators as well as mediators and dependent variables, respectively. Since mediation is not to be expected when one of these associations (i.e., one of the indirect
effects) is weak, SEM-5 was first estimated to address this shortcoming of SEM-6.

Figure 8. Perceived fairness, perceived value, positive affect, and negative affect as mediators of the effect of different MDP profiles on consumer behavior (SEM-5).

SEM-5. SEM-5, $\chi^2(143) = 879.10$ ($p = .000$), RMSEA = .056, CFI = .974, met Hu and Bentler’s (1999) joint criteria for global fit. To investigate the mediating role of the four cognitive and affective constructs, Sobel tests were performed (Baron and Kenny 1986; Sobel 1982). Based on H8, H9, H12, and H13 as well as previous research investigating the influence of perceptions of fairness and value on consumer behavior (e.g., Xia et al. 2004; Zeithaml 1988), one-tailed tests were performed on the structural equation coefficients. Moreover, given this set of directed hypotheses, one-sided z-tests were conducted to test for mediation with greater statistical power. Inspection of the unstandardized structural equation coefficients in Figure 8 revealed
that, with the exception of the insignificant effects, one-sided tests were generally appropriate. The results of the mediation analysis for SEM-5 are reported in Table 12.

Table 12. The translation of different MDP profiles into consumer behavior: Results of the mediation analysis for SEM-5.

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Mediator</th>
<th>Purchase Intent</th>
<th>Positive Word-of-Mouth</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ascending vs. Flat MDP Profile&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Perceived Fairness</td>
<td>-6.33***</td>
<td>-3.93***</td>
</tr>
<tr>
<td></td>
<td>Perceived Value</td>
<td>1.42†</td>
<td>1.45†</td>
</tr>
<tr>
<td></td>
<td>Positive Affect</td>
<td>-4.07***</td>
<td>-4.02***</td>
</tr>
<tr>
<td></td>
<td>Negative Affect</td>
<td>-1.73*</td>
<td>-3.73***</td>
</tr>
<tr>
<td>Descending vs. Flat MDP Profile&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Perceived Fairness</td>
<td>-1.17</td>
<td>-1.14</td>
</tr>
<tr>
<td></td>
<td>Perceived Value</td>
<td>2.57**</td>
<td>2.73**</td>
</tr>
<tr>
<td></td>
<td>Positive Affect</td>
<td>2.25*</td>
<td>2.24*</td>
</tr>
<tr>
<td></td>
<td>Negative Affect</td>
<td>1.39†</td>
<td>1.99*</td>
</tr>
</tbody>
</table>

Note. Numbers denote Sobel test-statistics, i.e. z-values.
<sup>a</sup> Technically speaking, MDP profile is the independent variable. To facilitate interpretation, it is here referred to in terms of the dummy variables that represent a seller’s decision to offer an ascending and descending MDP profile, respectively, rather than a flat one.
<sup>†</sup> No marginally significant mediation was diagnosed (both ps ≤ .077) because the effect of the ascending vs. flat MDP profile on perceived value was not in the hypothesized direction (marginally significant, p = .067, one-tailed).
<sup>‡</sup> Marginally significant, p = .082, one-tailed.

*** p < .001, ** p < .01, * p < .05, one-tailed.

Perceived fairness was found to mediate the effect of an ascending vs. flat MDP profile on both purchase intent and positive word-of-mouth. By contrast, perceived fairness was not involved in carrying the effect of a descending vs. flat MDP profile to consumer behavior. Reversed results were obtained for perceived value, which failed to mediate the effect of an ascending vs. flat MDP profile on consumer behavior in a theory-consistent manner. However, value perceptions carried the effect of a descending vs. flat MDP profile to both purchase intent and positive word-of-mouth. With respect to consumers’ emotional responses, positive affect consistently mediated the effect of different MDP profiles on consumer behavior. With one exception, identical results were obtained for negative affect. That is, the mediated effect of a descending vs. flat MDP profile on purchase intent merely achieved marginal significance (p = .082). When mediation occurred, it was complete, all Δχ²(1)s ≤ 1.32, all ps ≥ .251.

SEM-6. SEM-6, χ²(147) = 884.58 (p = .000), RMSEA = .056, CFI = .974, also achieved good fit. Inspection of the unstandardized structural equation coefficients revealed that positive (negative) affect was positively (negatively) related to perceived
fairness, perceived value, purchase intent, and positive word-of-mouth. Thus, H13 was corroborated.

\[ R^2 = .08 \]

\[ R^2 = .35 \]

\[ R^2 = .53 \]

\[ R^2 = .01 \]

\[ R^2 = .50 \]

\[ R^2 = .35 \]

\[ R^2 = .57 \]

\[ R^2 = .08 \]

\[ R^2 = .35 \]

\[ R^2 = .53 \]

\[ R^2 = .01 \]

\[ R^2 = .50 \]

\[ R^2 = .57 \]

\[ R^2 = .01 \]

\[ R^2 = .50 \]

\[ R^2 = .57 \]

\[ \chi^2(147) = 884.58 \]

\[ \text{RMSEA} = .056 \]

\[ \text{CFI} = .974 \]

**Figure 9.** A cognitive-affective model of the effect of different MDP profiles on consumer behavior based on appraisal theory (SEM-6).

To assess whether consumers’ cognitive appraisal of different MDP profiles generates emotions—and whether changes in behavior reflect the effort to cope with these emotions—a second mediation analysis was conducted. Based on the above line of reasoning (see SEM-5), one-sided z-tests were performed. The results of the mediation analysis are given in Table 13. Perceived fairness mediated the effect of an ascending vs. flat MDP profile on both positive affect and negative affect. Mediation was complete, both \( \Delta \chi^2(1)s \leq 1.24 \), both \( ps \geq .266 \). By contrast, fairness perceptions were not involved in translating the effect of a descending vs. flat MDP profile into consumer affect. Reversed results were again obtained for perceived value, which carried the effect of a descending vs. flat MDP profile to both positive affect and negative affect.
Mediation was incomplete, both $\Delta \chi^2(1) \geq 5.84$, both $p$s $\leq .016$. Yet, value perceptions did not mediate the effect of an ascending vs. flat MDP profile on consumer affect in a theory-consistent manner. Finally, positive affect and negative affect consistently mediated the effect of both perceived fairness and perceived value on purchase intent and positive word-of-mouth. Mediation was incomplete, all $\Delta \chi^2(1) \geq 21.03$, all $p$s $\leq .000$. While H14 was partially confirmed, H15 met with full empirical support.

### Table 13. Testing appraisal theory: Results of the mediation analysis for SEM-6.

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Mediator</th>
<th>Dependent Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Positive Affect</td>
</tr>
</tbody>
</table>
| **Ascending vs. Flat MDP Profile**
| Perceived Fairness   | -8.56***            | 9.22***            | —               | —               |
| Perceived Value      | 1.42‡               | -1.40‡             | —               | —               |
| **Descending vs. Flat MDP Profile**
| Perceived Fairness   | -1.15               | 1.15               | —               | —               |
| Perceived Value      | 2.71**              | -2.57**            | —               | —               |
| **Perceived Fairness**
| Positive Affect      | —                   | —                   | 11.84***        | 10.84***        |
| Negative Affect      | —                   | —                   | 2.02*           | 5.96***         |
| **Perceived Value**
| Positive Affect      | —                   | —                   | 8.10***         | 7.75***         |
| Negative Affect      | —                   | —                   | 1.93*           | 4.33**          |

*Note. Numbers denote Sobel test-statistics, i.e. z-values.

- Technically speaking, MDP profile is the independent variable. To facilitate interpretation, it is here referred to in terms of the dummy variables that represent a seller’s decision to offer an ascending and descending MDP profile, respectively, rather than a flat one.
- No marginally significant mediation was diagnosed (both $p$s $\leq .081$) because the effect of the ascending vs. flat MDP profile on perceived value was not in the hypothesized direction (marginally significant, $p = .077$, one-tailed).

### A supplementary analysis revealed that the two affective constructs jointly achieved incremental validity beyond perceived fairness and perceived value, $\Delta \chi^2(4) = 461.93$, $p = .000$. The improvement in $R^2$ was eleven (ten) percentage points for purchase intent (positive word-of-mouth). Also, positive affect and negative affect were found to independently enhance the prediction of consumer behavior and to be incrementally valid beyond each other, all $\Delta \chi^2(2)s \geq 95.13$, all $p$s $= .000$. Thus, consumers’ cognitive and affective responses to different MDP profiles were non-redundant.
3.7 Discussion and conclusions

Findings
The goal of this paper was to study consumer preferences for gestalt characteristics of MDPs. Results of a field experiment in the market for luxury cars reveal that consumers respond differently to MDPs with the same present value depending on how monthly installments are patterned. Consumers favor decreasing (constant) monthly installments over constant (increasing) ones. Yet, perceptions of fairness and value are asymmetrically affected by different MDP profiles: Compared with a series of constant monthly installments, perceived fairness is diminished by an ascending MDP profile, while perceived value is enhanced by a descending MDP profile. The reverse is not true. Consumers holding an anti-debt attitude as opposed to a pro-debt attitude ascribe even greater value to a descending MDP profile than to a flat one. Moreover, an ascending (descending) MDP profile exerts its causal influence on purchase intent and positive word-of-mouth through both positive and negative affective responses and perceptions of unfairness (value). Finally, the interplay between events (i.e., different MDP profiles), cognitions (i.e., perceptions of fairness and value), emotions (i.e., positive affect and negative affect), and consumer behavior (i.e., purchase intent and positive word-of-mouth) is in line with appraisal theory. These findings, corroborating the hypothesized profile effect, have several implications.

Theoretical and practical implications
Theoretical implications. The present findings are in line with the idea that decision-making is affected by the gestalt characteristics of extended experiences. In doing so, they challenge rational choice theory: Consumers should have been indifferent between MDPs with the same present value. Rather, results suggest that individuals have a stable preference for improving sequences of outcomes (Loewenstein and Prelec 1991, 1993). This preference appears to hold in the realm of (i) aversive stimuli such as pain (e.g., Ariely 1998) and prices paid (e.g., MDPs), (ii) financial outcomes such as payments received (e.g., wages; Chapman 1996; Loewenstein and Sicherman 1991) and payments due (e.g., monthly installments), and (iii) marketing action such as service quality (Ariely and Zauberman 2003), advertising (Baumgartner et al. 1997), and multi-dimensional pricing. The present results also substantiate Slovic’s (1972) concreteness principle. Consumers responded to information that was explicitly displayed (i.e., an MDP’s profile). At the same time, information that had to be verified (i.e., an
MDP’s present value) had no effect on consumer behavior.

Although the present paper demonstrates that consumers’ evaluations and choices are influenced by MDP profiles, the finding that perceptions of fairness and value are asymmetrically affected is somewhat puzzling. With regard to perceived fairness, it is conceivable that perceptions of unfairness neutralized perceptions of benefiting personally from a descending MDP profile. A related explanation is that notions of unfairness are much sharper than notions of fairness (Xia et al. 2004). With respect to perceived value, the descending MDP profile may have generated high transaction utility. By contrast, the ascending one—rather than inducing perceptions of transaction disutility—may have merely resulted in low transaction utility (Thaler 1985). Assuming that low transaction utility increases the salience of acquisition utility, and hence its impact on overall value judgments, ascending and flat MDP profiles may provide consumers with similar value.

The results of this research are also in line with the idea that consumers are averse to debt (e.g., Prelec and Loewenstein 1998). Consumers generally favored payment regimes enabling them to reduce debt at a faster rate. Moreover, consumers’ affective responses provide direct evidence to support the hypothesis that different levels of residual debt have different hedonic consequences. Specifically, they confirm Prelec and Loewenstein’s conjecture that consumers accelerate payments to escape from an averse experience, i.e. being in debt.

Consistent with this conclusion, consumers expressing an anti-debt attitude as opposed to a pro-debt attitude ascribed even greater value to the descending MDP profile than to its flat counterpart. The failure of debt attitude to moderate the appeal of an ascending vs. flat MDP profile might be due to the fact that an ascending MDP profile is so unacceptable to consumers that even those with a pro-debt attitude disapprove of it. The finding that neither current nor anticipated income moderated the preference for different MDP profiles lends itself to several explanations. It is conceivable that, in the present sample, current income was sufficiently high to cover monthly installments of up to € 1,126 (see Appendix B and Table 8), consumers reported their financial hopes rather than expectations, and/or respondents were not sufficiently involved to consider their (anticipated) budget constraints in assessing a given MDP profile.

The mediating role of consumer affect highlights the effect of anticipatory emotions on decision-making (Loewenstein et al. 2001). In evaluating MDP profiles, consumers experienced changes in both positive affect and negative affect, which, in turn,
led them to adjust their behavior, or behavioral intentions, accordingly. Consistent with appraisal theory, anticipatory emotions were found to arise from cognitive appraisal, whereas changes in behavior reflected consumers’ efforts to cope with their affective responses. Moreover, the incremental validity of anticipatory emotions beyond consumers’ cognitive responses suggests that the former represent a standalone factor shaping consumer behavior. These results imply that both cognitions (e.g., perceptions of fairness and value) and affect are involved in consumers’ processing of price information. In this regard, the present findings also confirm Xia et al.’s (2004) conceptual framework which proposes that perceived price unfairness is accompanied by various negative emotions.

Practical implications. The results of this paper suggest that the status quo of multi-dimensional pricing is suboptimal. The financial implications of this finding are twofold. First, offering descending rather than flat MDP profiles provides sellers with an opportunity for increasing both volumes and sales. Yet, offering ascending MDP profiles—e.g., in an attempt to entice consumers with low initial monthly installments—will likely have an opposite effect. This implies that “buy now, pay later” strategies may backfire on sellers.

Second, as shown in Table 14, different MDP profiles with the same present value have different cash flow implications. These, in turn, depend on (i) the difference between the discount rate that was used to determine the magnitude of monthly installments and the rate at which monthly installments can be reinvested, (ii) the velocity with which monthly installments change over the repayment period, and (iii) the duration of the repayment period. Scenarios 1, 2, and 3 reveal that, when the reinvestment rate exceeds the discount rate, descending (flat) MDP profiles yield higher discounted cash flows than flat (ascending) ones. Yet, when the reinvestment rate falls short of the discount rate, ascending (flat) MDP profiles outperform flat (descending) ones. Moreover, when the discount rate is larger (smaller) than the reinvestment rate, steeper (see scenario 4) and/or shorter MDP profiles (see scenario 5) amplify the positive (negative) cash flow implications of a descending MDP profile.

Overall, the present findings give little reason to believe that descending MDP profiles have the potential to harm a company. Thus, to reap the financial benefits of descending MDP profiles, sellers may give consumers the opportunity to self-select into multi-dimensional pricing schemes that match their (anticipated) economic resources and recognize their preference for improvement as well as their debt aversion. This is a
relatively low-risk strategy because different MDP profiles are complements, not substitutes. At the same time, companies should not expect descending MDP profiles to provide them with a sustainable competitive advantage. However, descending MDP profiles might also attract consumers’ attention in the early stages of decision-making—and thus help put a brand into their consideration set.

Table 14. Simulated cash flow implications of different MDP profiles with the same present value at different reinvestment rates.

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Gestalt Characteristics</th>
<th>Reinvestment Rate (p.a.)</th>
<th>Difference between Discount Rate (= 3.9% p.a.) and Reinvestment Ratea</th>
</tr>
</thead>
<tbody>
<tr>
<td>1b</td>
<td>Ascending; Δ = + € 200/year; 48 months</td>
<td>1.9% 2.9% 3.9% 4.9% 5.9% 8.9% 13.9%</td>
<td>-2.0% -1.0% ±0.0% +1.0% +2.0% +5.0% +10.0%</td>
</tr>
<tr>
<td>2b</td>
<td>Flat; Δ = ± € 0/year; 48 months</td>
<td>41,712 42,566 43,434e 44,317 45,215 47,999 52,950</td>
<td></td>
</tr>
<tr>
<td>3b</td>
<td>Descending; Δ = − € 200/year; 48 months</td>
<td>41,447 42,420 43,411e 44,421 45,448 48,646 54,367</td>
<td></td>
</tr>
<tr>
<td>4c</td>
<td>Descending; Δ = − € 300/year; 48 months</td>
<td>41,315 42,348 43,400e 44,472 45,565 48,969 55,076</td>
<td></td>
</tr>
<tr>
<td>5d</td>
<td>Descending; Δ = − € 200/year; 24 months</td>
<td>40,874 42,127 43,406e 44,713 46,048 50,222 57,768</td>
<td></td>
</tr>
</tbody>
</table>

Note. Numbers denote accumulated amounts denominated in € after 48 months. At a discount rate of 3.9% p.a., the present value of all MDP profiles featured in this simulation is €37,125 (±0.1% due to rounding).

b Positive (negative) values imply that the reinvestment rate is larger (smaller) than the discount rate that was used to determine the magnitude of monthly installments for different MDP profiles with the same present value.

c These scenarios correspond to the MDP profiles shown in Appendix B.

d This MDP profile is characterized by monthly installments of €1,271, €971, €671, and €371, lasting for twelve months each.

e This MDP profile is characterized by monthly installments of €1,757, €1,657, €1,557, and €1,457, lasting for six months each.

f The difference in accumulated amounts is due to rounding. Without rounding error, accumulated amounts are supposed to be equal.

Limitations and avenues for future research

The MDP profiles in this paper involve a repayment period of 48 months and changes in average monthly installment of ± € 200/year. Future research may consider different repayment periods and/or different changes in monthly installments. In doing so, it will be interesting to learn whether consumers display duration neglect (Ariely, Kahneman and Loewenstein 2000) or whether debt aversion leads them to prefer shorter
repayment periods to longer ones (Prelec and Loewenstein 1998); whether they respond more favorably to monthly installments that decrease at a faster rate as opposed to a slower rate (Hsee and Abelson 1991); and whether exceptionally high initial monthly installments may even undermine the preference for descending MDP profiles (Ariely and Carmon 2000). Investigating whether descending MDP profiles earn a price premium represents another worthwhile research endeavor.

The current research was set in the automotive sector, studying consumers’ prospective evaluations of different MDP profiles. A between-subjects design was employed. It is therefore unclear whether the present findings generalize to other industries and experimental stimuli, retrospective evaluations, and actual behavior (e.g., sales). Moreover, future research should replicate the present results using a within-subjects manipulation. It will also be fruitful to study whether the effect of different MDP profiles is moderated by consumers’ progress in the decision-making process: Greater involvement may reduce the influence of gestalt characteristics.

Finally, different theoretical accounts suggest that consumers have a penchant for improvement. Yet, little is known about which forces exactly drive negative time preference in a given situation. Gaining further insights into consumer preferences for sequences of outcomes will enable both buyers and sellers to benefit from marketing offers that “follow a pattern that matches [consumers’] preferences for how real-life experiences should turn out” (Baumgartner et al. 1997, p. 230). The present paper hopes to spur research along these, and related, lines.

### 3.8 References


### Appendix A: Dependent, mediating, and moderating variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th># of Items</th>
<th>Measure(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Fairness</td>
<td>.92</td>
<td>3</td>
<td>The present finance offer is: “very unfair” vs. “very fair”; “very unreasonable” vs. “very reasonable”; “very unacceptable” vs. “very acceptable”. 7-point scales were used. Adapted from Vaidyanathan and Aggarwal (2003).</td>
</tr>
<tr>
<td>Perceived Value</td>
<td>.79</td>
<td>3</td>
<td>The value of this car is: “very low” vs. “very high”. Given its list price, this car is considered to be: “a bad deal” vs. “a good deal”. At the price shown, this car is: “very uneconomical” vs. “very economical”. 7-point scales were used. Adapted from Dodds et al. (1991).</td>
</tr>
<tr>
<td>Positive Affect</td>
<td>.94</td>
<td>5</td>
<td>The present finance offer makes me feel: pleased; elated; optimistic; encouraged; hopeful. All 7-point scales anchored at “not at all” and “very much”. Adapted from Richins (1997).</td>
</tr>
<tr>
<td>Negative Affect</td>
<td>.81</td>
<td>2</td>
<td>The present finance offer makes me feel: angry; discontented. For scale properties and references, see Positive Affect.</td>
</tr>
<tr>
<td>Purchase Intent</td>
<td>.95</td>
<td>2</td>
<td>At the price shown, I would consider buying this car: “strongly disagree” vs. “strongly agree”. My willingness to buy this car is: “very low” vs. “very high”. 7-point scales were used. Adapted from Dodds et al. (1991).</td>
</tr>
<tr>
<td>Positive Word-of-Mouth</td>
<td>.94</td>
<td>3</td>
<td>I will say positive things about the offer for this car to other people. I will recommend the offer for this car to someone who seeks my advice. I will encourage friends and relatives to consider the offer for this car when planning to buy a new automobile. All 7-point scales anchored at “not at all likely” and “extremely likely”. Adapted from Zeithaml et al. (1996).</td>
</tr>
<tr>
<td>Consumer Choice</td>
<td>—</td>
<td>1</td>
<td>Would you rather like to prepay or take advantage of the finance offer? Please select your favorite option: “MDP” vs. “prepayment”.</td>
</tr>
<tr>
<td>Actual Current Income</td>
<td>—</td>
<td>1</td>
<td>Monthly disposable income: “less than € 1,500”; “€ 1,500 thru € 2,999”; “€ 3,000 thru € 4,999”; “€ 5,000 thru € 6,999”; “€ 7,000 or more”; “I do not wish to report”.</td>
</tr>
<tr>
<td>Perceived Current Income</td>
<td>.68</td>
<td>2</td>
<td>I am generally on a tight budget (−). An unexpected expense of € 5,000 would put me into financial hardship (−). Both 7-point scales anchored at “strongly disagree” and “strongly agree”; (−) = reverse-keyed. Adapted from Mittal (1994).</td>
</tr>
<tr>
<td>Financial Expectations</td>
<td>.88</td>
<td>3</td>
<td>My disposable income next year will be higher than this year. In the future, I will be able to afford more than today. My disposable income will steadily increase over the next five years. All 7-point scales anchored at “strongly disagree” and “strongly agree”. Based on the work of Brown et al. (2005) and Levedahl (1980).</td>
</tr>
<tr>
<td>Debt Attitude</td>
<td>.87</td>
<td>13</td>
<td>Borrowed money should be repaid as soon as possible. Owing money is basically wrong. Being in debt is a bad thing. There is no excuse for borrowing money. You should always save up before buying something. I would worry a lot if I got into debt. Once you are in debt it is very difficult to get out of debt. It is ok to be in debt if you can pay it off (−). I would rather be in debt than change my lifestyle (−). Debt is a normal part of today’s lifestyle (−). Taking out a loan is a good thing because it allows you to enjoy life (−). It is a good idea to have something now and pay for it later (−). Borrowing money is sometimes a good thing (−). All 7-point scales anchored at “strongly disagree” and “strongly agree”; (−) = reverse-keyed. Adapted from Lea et al. (1995).</td>
</tr>
</tbody>
</table>
Appendix B: Experimental stimuli

Prepayment

Start of utilization period

Time

Start of utilization and repayment period

End of repayment period after 48 months

Monthly installments for months 1 thru 12 (1st year)

Monthly installments for months 13 thru 24 (2nd year)

Monthly installments for months 25 thru 36 (3rd year)

Monthly installments for months 37 thru 48 (4th year)

Time

Start of utilization and repayment period

End of repayment period after 48 months

Monthly installments for months 1 thru 12 (1st year)

Monthly installments for months 13 thru 24 (2nd year)

Monthly installments for months 25 thru 36 (3rd year)

Monthly installments for months 37 thru 48 (4th year)

Time

Prepayment

Start of utilization period

Time

Monthly installments for months 1 thru 12 (1st year)

Monthly installments for months 13 thru 24 (2nd year)

Monthly installments for months 25 thru 36 (3rd year)

Monthly installments for months 37 thru 48 (4th year)

Time
4 Giving them what they want! Consumers’ susceptibility to the medium effect in loyalty programs

4.1 Abstract

In many LPs, consumer effort and ultimate rewards are linked via a medium (e.g., LP points). Therefore, the research agenda for this article is to investigate consumers’ susceptibility to the medium effect in LPs. Results of a field experiment ($N = 1,366$) reveal a pervasive influence of media on consumer decision-making. Consistent with the notion of a medium heuristic, consumers use the amount of LP points awarded per purchase as a cue of program attractiveness: Effort-to-medium payoff is positively related to perceived program fairness, likelihood of joining LP, and attitudinal loyalty. At the same time, consumers are insensitive to an LP’s funding rate. This leads them to prefer LPs with high effort-to-medium payoff but an unfavorable funding rate to LPs with low effort-to-medium payoff but a favorable funding rate. The preference for more medium is particularly pronounced among low-income consumers. Finally, perceived program fairness mediates the effect of effort-to-medium payoff on likelihood of joining LP and attitudinal loyalty. Results suggest that perceptions of relative advantage are a crucial driver of program value. Implications are discussed.

4.2 Introduction

In recent years, LPs have become a ubiquitous marketing-mix tool to enhance customer loyalty in a broad variety of industries (Kivetz and Simonson 2002). Offering sales-contingent rewards and creating perceived switching costs, LPs serve a critical role in building sustainable buyer-seller relationships, increasing product and service usage, and keeping customers from defecting to rivals (Kim, Mengze and Srinivasan 2001; Kivetz 2003). Conceptually, such programs share a common underlying structure (Kivetz and Simonson 2003; Kivetz, Urminsky and Zheng 2006). Customers have to invest a stream of efforts (e.g., purchase a certain number of flights) to earn future rewards (e.g., a free flight). These efforts are typically extended over time (i.e., customers have to make repeat purchases), while rewards are made contingent upon reaching a particular requirement level (e.g., 15 paid flights for a free flight).

However, when customers exert effort (e.g., by spending money on flights) to obtain a desired outcome (e.g., a reward such as a free flight), the instant gratification

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they receive in LPs is not the ultimate outcome. Rather, the immediate payoff of customer effort is a medium (e.g., bonus miles or LP points)—a token that can be traded for the outcome customers care about (e.g., a free flight or a gift) (Hsee et al. 2003; Shi, Li and Soman 2006; Van Osselaer, Alba and Manchanda 2004). Thus, LPs not only raise conceptual issues concerning the role of effort streams and reward characteristics (Kivetz and Simonson 2002) but also about the impact of media on consumer preferences toward such programs.

![](image)

**Unifying Framework: The Relative Advantage Heuristic**

**Figure 10.** The relative advantage heuristic as a unifying framework for studying consumer preferences toward LPs.

Previous work has identified many important factors that contribute to the success of LPs (Kivetz and Simonson 2002, 2003; Kivetz et al. 2006; Nunes and Drèze 2006; Shi et al. 2006; Van Osselaer et al. 2004). One crucial determinant of program attrac-
tiveness is a consumer’s effort advantage, or disadvantage, relative to a reference effort (e.g., the effort for a typical consumer or most other consumers). Kivetz and Simonson (2003) have demonstrated that consumers resort to an idiosyncratic fit heuristic to infer the overall value of LPs. When consumers perceive their own effort in complying with the requirements of a given LP as lower than the effort of typical other consumers, they construe that LP as providing idiosyncratic fit—and hence a better deal for them. With consumers being enticed by LPs for which they believe to enjoy relative effort advantage, the structure of LPs (i.e., effort → medium → reward) raises the following question: Are the remaining components of an LP (i.e., medium and reward) also capable of giving rise to perceptions of advantage relative to other consumers? As shown in Figure 10, the leitmotiv of the present paper is that perceptions of relative advantage may emanate from any of the three components of an LP (i.e., effort, medium, and reward). This implies that the idiosyncratic fit heuristic in the domain of effort is only a variant on a common, unifying relative advantage heuristic which is proposed as a framework for studying consumer preferences toward LPs. Consumers are therefore expected to employ a medium (reward) heuristic in the domain of medium (reward) to form judgments about program value.

Marketing knowledge on the effect of media is still scant. In an attempt to develop a deeper understanding of how LP points shape consumer preferences toward LPs, the main goal of this paper is to investigate the notion of a medium heuristic, i.e. the use of media as a proxy of program value. Normatively speaking, a medium should have no bearing on consumer decision-making (Hsee et al. 2003). Yet, the emerging marketing literature on the medium effect suggests that media do matter to consumers. In a series of experimental studies, Hsee et al. found evidence of myopic medium maximization. Subjects failed to cancel the influence of a medium and hence made suboptimal choices. For example, to receive a larger amount of the medium (e.g., 100 vs. 60 points), they worked longer for a less enjoyed outcome. That is, subjects maximized effort-to-medium payoff rather than effort-to-outcome return. In a similar vein, Van Osselaer et al. (2004) have demonstrated that media are overvalued and that they may function as more than a tie-breaker between equally attractive options. On a given choice occasion, subjects’ choices between two hypothetical airlines were biased toward higher, yet irrelevant, LP points—even though truly discriminating price information was available. Finally, Shi et al. (2006) found subjects to construe participation in LPs as a goal-directed activity. Multi-medium LPs, linking effort and outcome via
points and vouchers, outperformed functionally equivalent single-medium LPs where effort and outcome were intermediated by points only.

These findings from the lab, suggesting that media may alter preferences, have important implications for the design and the behavioral consequences of real-world LPs. Hsee et al. (2003) have noted that marketers may stimulate purchase behavior by manipulating the way media are allocated to efforts. Building on this notion, Van Osselaer et al. (2004) have argued that myopic medium maximization may leave consumers vulnerable to quasi-deceptive marketing ploys (see also Kivetz and Simonson 2003; Kivetz et al. 2006). Companies may raise profits, i.e. boost sales and/or cut costs, by being more generous on the medium side (i.e., offering more medium per unit effort), while simultaneously being more tight-fisted on the reward side (i.e., providing less reward per unit medium). This implies that marketers could harness the medium effect to entice consumers with marketing offers that reduce their economic welfare—yet without triggering a consumer backlash. Thus, in an effort to assess consumers’ susceptibility to the medium effect in LPs, one of the main goals of this paper is to examine whether LPs with high effort-to-medium payoff but an unfavorable funding rate are preferred to LPs with low effort-to-medium payoff but a favorable funding rate.

In doing so, the extant body of research on LPs and the medium effect is extended in several ways. First, Kivetz and Simonson (2002, 2003) have argued that, rather than choosing between two or more LPs, consumers typically face the decision whether to enroll in a given LP. Thus, the multi-LP choice paradigm employed by Hsee et al. (2003), Shi et al. (2006), and Van Osselaer et al. (2004) is abandoned. A single-LP evaluation paradigm is employed instead. Second, a medium heuristic is proposed to theoretically account for consumers’ propensity to maximize media. Third, Van Osselaer et al. (2004) have shown that, on a given choice occasion, consumers have a penchant for more medium. By contrast, the present paper is concerned with the question whether consumers prefer more medium generally, i.e. across a series of purchase occasions. Fourth, the effect of program characteristics on consumer preferences is examined covering a wider set of dependent variables that includes both traditional measures (e.g., likelihood of joining LP) and novel ones (e.g., perceived program fairness and various measures of attitudinal loyalty). This multivariate approach enables the current research to study fairness perceptions as an intervening variable between effort-to-medium payoff and consumer behavior. Fifth, the present work seeks to identify individual difference variables (e.g., reward deprivation) that moderate the appeal
of media to consumers. Finally, this paper probes whether media lead consumers to make suboptimal decisions in the guise of violations of dominance (e.g., to favor a dominated LP over a dominating LP), thereby enabling sellers to raise profits.

4.3 Conceptual framework: The medium heuristic

Consumer preferences are often volatile and ill-defined. As a matter of fact, it is a rather robust finding that consumers craft ad hoc evaluations of marketing offers when faced with the need to make a decision (see Bettman, Luce and Payne 1998 for a synopsis). The difficulties that consumers have in assessing individual options and outcomes are a case in point (Bazerman, Loewenstein and White 1992; Hsee 1996; Nowlis and Simonson 1997). Making a singular evaluation of a marketing offer (e.g., an LP) appears to be particularly onerous when consumers lack a readily available reference point such as similar offers that they have encountered previously (e.g., other LPs) (see Kahneman, Ritov and Schkade 1999). Under such circumstances, consumers tend to evaluate a marketing offer by seeking cues that may serve as a proxy of the ‘true value’ of that offer (Kivetz and Simonson 2003; Thaler 1985; Winer 1986).

For many consumers, evaluating a single LP is cognitively taxing for several reasons. First, the funding rate (i.e., effort-to-outcome return) is typically not directly given. Rather, it has to be calculated from two pieces of information, namely (i) the amount of medium awarded per unit effort (i.e., effort-to-medium payoff) and (ii) the amount of reward awarded per unit medium (i.e., medium-to-outcome return) (Hsee et al. 2003). Second, most consumers have little expertise in assessing the efforts and rewards associated with participating in an LP. This problem is further exacerbated by the fact that there are often no established standards regarding an adequate funding rate (Kivetz and Simonson 2003). Third, even when reference points such as other LPs are available, comparisons are difficult to perform. LPs are often complex, exhibit dissimilar effort-to-medium conversion rates, and are structured differently both across and within industries (Hsee 1996; Kivetz et al. 2006; Nowlis and Simonson 1997). In sum, the decision whether to enroll in a given LP will induce high cognitive load in consumers. One effective strategy to ease one’s cognitive load is to simplify the decision-making process by using a heuristic (Kahneman et al. 1982). Consumers are therefore expected to evaluate a single LP on the basis of the most salient cues such as idiosyncratic fit (Kivetz and Simonson) or effort-to-medium payoff (present paper).

In keeping with the unifying concept of relative advantage (see Figure 10), the
The main proposition of this paper is the following: Consistent with the medium effect, consumers employ a medium heuristic to judge program value. That is, consumers will use effort-to-medium payoff as a heuristic cue of an LP’s attractiveness. Specifically, when a given LP yields an advantage (disadvantage) in terms of effort-to-medium payoff relative to a reference level—e.g., effort-to-medium payoff of a typical LP in the same industry—consumers will perceive the target LP as more (less) attractive. For example, when a particular LP offers 120 (30) LP points for every purchase of a service, while the typical program in the same industry yields 60 LP points for the same effort level, consumers will perceive the program that is more (less) generous on the medium side as providing medium advantage (disadvantage). Consumers will thus conclude that the LP that yields more (less) medium per unit effort is a better (worse) deal for them. Again, effort-to-medium payoff alone is normatively irrelevant. To calculate an LP’s funding rate, consumers need two pieces of information, i.e. effort-to-medium payoff and medium-to-outcome return. Still, research on both medium maximization and illusionary goal progress provides support for the notion of a medium heuristic, i.e. the use of media as the most salient cues in assessing program value.

With respect to medium maximization, Hsee et al. (2003) have demonstrated that choices are influenced by both the presence and quantity of a medium. The authors argue that psychological myopia accounts for the tendency to focus on immediate rewards (e.g., effort-to-medium payoff) and to neglect the consequences of these rewards (e.g., medium-to-outcome return). That is, in the presence of media, decision-makers tend to overlook the fundamental implications of their behavior (e.g., effort-to-outcome return). Individuals are held to myopically maximize media because media provide an illusion of advantage. An option (e.g., an LP) that is originally not very advantageous (e.g., due to an unattractive funding rate) appears more favorable when it is endowed with large quantities of a medium (e.g., LP points): Effort brings large returns in the medium, while there is no advantage—or even a disadvantage—in terms of the outcome. Thus, the characteristics of two options, e.g. LP$_1$ and LP$_2$, conducive to a medium effect are a large difference in medium (M) and a small difference in outcome (O), i.e. $M_2/M_1 >> O_2/O_1$ (Hsee et al.). In the context of LPs, media also create an illusion of certainty to an uncertain outcome because media may lose value (Van Osselaer et al. 2004) and because the desirability of the outcome is ambiguous, while the amount of a medium is instantly recognizable (Hsee, Zhang, Yu and Xi 2003); an illusion of linearity because medium payoff increases linearly as consumers exert more
effort, whereas the utility function of the rewards is concave (Hsee et al.); and an illusion of immediacy (i.e., instant gratification) because outcomes (i.e., rewards) are only delivered with a considerable lag after the first occurrence of the target behavior (i.e., making a purchase) (Hsee et al.). As a consequence, consumers will reveal a preference for more medium.

With regard to illusionary goal progress, Shi et al. (2006) have argued that consumers construe participation in LPs as a goal-directed activity. Consumers perceive their task as earning the amount of medium required to obtain a desired outcome. That is, progress along multiple levels of media—e.g., points and vouchers—serves as a metering device to track progress toward the goal of receiving a reward. In the present context, it is plausible to assume that consumers will rely on effort-to-medium payoff to evaluate goal progress. Kivetz et al. (2006) have proposed a goal distance model that incorporates the goal-gradient hypothesis. The authors claim that consumers are aware of their distance to a goal (e.g., receiving a reward). As a result, their motivation to reach the goal is positively related to psychological goal proximity, i.e. perceived progress toward the goal. Thus, marketers may create illusionary goal progress by enhancing the perception of distance completed per unit effort (e.g., by raising effort-to-medium payoff), while simultaneously increasing the total distance to the outcome (e.g., the amount of medium required to obtain a reward) (see also Kivetz et al.; Nunes and Drèze 2006). Consumers will hence interpret medium advantage (disadvantage)—e.g., 120 (30) LP points vs. 60 LP points for every purchase—as moving toward (away from) their goal of redeeming the outcome. This will result in a preference for LPs that yield high effort-to-medium payoff.

In sum, consumers are expected to employ a medium heuristic in assessing an LP’s attractiveness. That is, they will form value judgments on the basis of an LP’s effort-to-medium payoff relative to that of a typical program in the same industry. When the target LP yields higher (lower) effort-to-medium payoff than the reference LP, consumers construe the target LP as providing a better (worse) deal for them (see also Kivetz and Simonson 2003). Thus, an LP that provides medium advantage (disadvantage) is perceived as generating high (low) value.

### 4.4 Hypothesis development

**Likelihood of joining LP**

Kivetz and Simonson (2003) have argued that consumers’ likelihood of joining an LP
is the primary indicator of program value. According to the medium heuristic, medium advantage (disadvantage) will enhance (diminish) perceived program value. This implies that effort-to-medium payoff is positively related to the likelihood of consumers joining a given LP. Therefore:

**H18**: Medium advantage (disadvantage) will increase (decrease) the likelihood of consumers joining a given LP.

**Attitudinal loyalty**

*Brand attitude*. Brand attitude represents a consumer’s overall evaluation of a brand which, in turn, drives consumer behavior, e.g. brand choice (Keller 1993). According to the expectancy-value model (Fishbein and Ajzen 1975), brand attitude is a function of both salient beliefs about a brand and the judgment of those beliefs. The medium heuristic predicts that medium advantage (disadvantage) will render perceptions of high (low) value particularly salient. Thus medium advantage (disadvantage) will induce a more (less) favorable attitude toward the brand. This hypothesis is supported by research demonstrating that attitudes can be formed on the basis of relatively crude heuristics (see, e.g., Chaiken 1987) and by self-generated validity theory (Feldman and Lynch 1988) which suggests that attitudes are construed on demand rather than being retrieved from memory.

*Anticipated satisfaction*. According to Oliver (1999), satisfaction, or dissatisfaction, is a crucial determinant of customer loyalty, or disloyalty. The construct of satisfaction refers to a consumer’s evaluation of the discrepancy between expectations (or other norms of performance) and actual, or perceived, performance (Tse and Wilton 1988). Therefore, satisfaction has been defined as the response to pleasurable fulfillment of needs and desires: Whenever a marketing stimulus performs well, consumers can be expected to be satisfied (Tse and Wilton). In this regard, Mittal, Ross and Baldasare (1998) have argued that satisfaction, or dissatisfaction, is affected by attribute quality perceptions. As previously noted, effort-to-medium payoff is an attribute of many LPs. Thus, medium advantage (disadvantage)—and the concomitant perception of high (low) value—will enhance (dampen) satisfaction with a given LP. This view is supported by research proposing a close link between perceived value and satisfaction (e.g., Bolton and Lemon 1999). Yet, in the context of evaluating a novel LP, given the lack of actual or per-
ceived performance, anticipated satisfaction, rather than satisfaction, is the appropriate construct to be studied. According to Granzin and Schjelderup (1982), higher levels of expected benefits will lead to anticipation of greater satisfaction. Therefore, medium advantage (disadvantage) will result in higher (lower) levels of anticipated satisfaction with a given LP.

*Loyalty intentions.* Customer retention is one of the main objectives of LPs. In this regard, the intention to be loyal is an important precursor to action loyalty, i.e. a customer’s commitment to re-buy a preferred brand despite marketing efforts apt to cause switching behavior (Oliver 1999). Copious evidence suggests that companies may improve both loyalty intentions and actual retention by creating perceived value (see, e.g., Bolton and Lemon 1999; Johnson, Herrmann and Huber 2006; Zeithaml et al. 1996). According to the medium heuristic, consumers use the amount of medium awarded per unit effort as an indicator of program value. Thus, medium advantage (disadvantage) will lead to higher (lower) loyalty intentions.

*Positive word-of-mouth.* Word-of-mouth behavior is one of the key responses that can emerge from a company’s efforts directed at forming relations with consumers, e.g. offering participation in an LP (Brown et al. 2005). Conceptually, word-of-mouth is a short-term outcome of consumers’ liking for, or (anticipated) satisfaction with, marketing offers, e.g. an LP (Bowman and Narayandas 2001). The valence of word-of-mouth can be neutral, positive, or negative. Specifically, positive (negative) word-of-mouth is a response to pleasant (unpleasant) experiences or satisfaction (dissatisfaction) (Herr et al. 1991). The medium heuristic predicts that high effort-to-medium payoff represents a pleasant experience because it induces perceptions of high value and instant gratification, for example. Similarly, it has been argued that effort-to-medium payoff is positively related to (anticipated) satisfaction. Thus, medium advantage (disadvantage) will lead to higher (lower) willingness to spread positive word-of-mouth about a given LP. The above observations are encapsulated in the following hypothesis:

**H19:** Medium advantage (disadvantage) will lead to a more (less) favorable brand attitude (H19a), higher (lower) levels of anticipated satisfaction with a given LP (H19b), higher (lower) loyalty intentions (H19c), and higher (lower) willingness to spread positive word-of-mouth about a given LP (H19d).
Perceived program fairness

Perceived unfairness may result in severe negative consequences for a seller, e.g. customers defecting to rivals. Thus, companies have a vital interest in creating marketing offers (e.g., LPs) that are not perceived as unfair (Xia et al. 2004). Equity theory (Adams 1965) proposes that perceptions of (un)fairness in an exchange relationship (e.g., an LP) are induced when a person (e.g., a consumer) compares his or her outcome with the outcomes of reference others (e.g., other consumers). This implies that fairness judgments involve a comparison of an (immediate) outcome (e.g., effort-to-medium payoff) with a pertinent standard. In applying the medium heuristic, the outcomes to be compared are effort-to-medium payoff in a given LP and effort-to-medium payoff in a typical LP. When outcomes (i.e., effort-to-medium payoffs) vary under conditions of high transaction similarity (i.e., similar LPs), consumers will construe medium advantage (medium disadvantage) [medium equality] as an instance of advantaged inequality (disadvantaged inequality) [equality] (see Xia et al.). Yet, these fairness judgments are biased by consumers’ self-interest, i.e. the desire to maximize their own benefits such as the amount of medium awarded per unit effort (Oliver and Swan 1989a, b). Consumers will hence judge an LP that provides medium advantage (disadvantage) as fairer (less fair) than an LP that yields medium equality.

Since unfairness perceptions may undermine a company’s relationship with its customers (Xia et al. 2004), perceived program fairness is not only a crucial indicator of consumer preferences toward LPs. Rather, perceived program fairness may also be conceptualized as a driver of (continued) participation in an LP. Thus, perceptions of (un)fairness are expected to mediate the effect of effort-to-medium payoff on likelihood of joining LP and attitudinal loyalty. This hypothesis is supported by research demonstrating that (i) perceived fairness and proactive consumer behavior are positively correlated and that (ii) fairness perceptions mediate the effect of marketing action on various measures of attitudinal loyalty such as loyalty intentions, satisfaction, or positive word-of-mouth (see Herrmann, Xia, Monroe and Huber 2007; Liao 2007; Oliver and Swan, 1989a, b). Therefore, the following hypotheses are proposed:

**H20:** Medium advantage (disadvantage) will enhance (diminish) consumer perceptions of program fairness.
H21: Perceived program fairness will mediate the effect of effort-to-medium payoff on both likelihood of joining LP (H21a) and attitudinal loyalty (H21b).

Insensitivity to an LP’s funding rate and violations of dominance
Research on medium maximization has found decision-makers to be negligent of effort-to-outcome return (Hsee et al. 2003). For example, more medium is capable of masking unfavorable effort-to-outcome return such that subjects work longer for a less enjoyed outcome. In the context of LPs, effort-to-outcome return corresponds to a program’s funding rate, i.e. the value of the rewards per unit effort (e.g., per purchase). Thus, rational consumers should base their assessment of a given LP solely on its funding rate. However, in keeping with the notion of psychological myopia, consumers are expected to respond to the amount of LP points awarded per purchase. At the same time, they will overlook an LP’s funding rate—at least within a certain range.

While the use of heuristics is mostly rational, over-application may lead to counter-normative decision-making (Kahneman et al. 1982). So long as medium-to-outcome return (i.e., the value of the rewards obtained per unit medium) is constant or shifted upward, a preference for more medium will result in selection of superior options. By contrast, when medium-to-outcome return is shifted downward, the medium heuristic is no longer consistent with value maximization. Therefore, consumers may irrationally prefer an LP with high effort-to-medium payoff to an LP with low effort-to-medium payoff even though the funding rate of the two LPs is identical. Moreover, Kivetz and Simonson (2003) have shown that over-relying on the idiosyncratic fit heuristic may even result in selection of inferior options (e.g., an LP with a less appealing funding rate): Under high idiosyncratic fit, the odds of consumers joining an LP with greater effort requirements for the same reward were found to increase. The medium heuristic is expected to exhibit similar properties (see also the proposed unifying framework in Figure 10). That is, in the presence of media, consumers will be oblivious to a shift in medium-to-outcome return. The resulting violation of dominance may take one of two forms, i.e. (i) preferring a dominated LP to a dominating LP or (ii) being indifferent between a dominated LP and a dominating LP. Given consumers’ hypothesized preference for more medium, and the concomitant neglect of an LP’s funding rate, the following hypothesis is suggested:
**H22**: Consumers will prefer LPs with high effort-to-medium payoff but an unfavorable funding rate to LPs with low effort-to-medium payoff but a favorable funding rate.

**Moderators of the medium effect in LPs**

Hsee et al. (2003) have proposed two moderators of the medium effect, namely (i) the magnitude of the medium differential (i.e., $M_2/M_1$), and (ii) the degree to which individuals are influenced by a medium (i.e., individual difference variables). The focus of the present paper is on the second class of moderators. Psychological myopia is the preferred explanation of the medium effect. Thus, all factors that impinge on the strength of one’s myopic orientation toward media are potential moderators.

*Maximizing.* Schwartz et al. (2002) have argued that individuals differ in their desire to maximize outcomes. In trying to determine whether one’s outcome is the best possible outcome, maximizers try to process all available information. Yet, when constraints hamper exhaustive search between options—e.g., when making a singular evaluation of an LP—maximizers rely heavily on social comparison information to assess whether their outcome is indeed the best. In connection with consumer decisions, Schwartz et al. have demonstrated that maximizers are strongly affected by their perceived standing relative to peers. Therefore, maximizers are presumed to respond more intensely to effort-to-medium payoff than satisficers.

*Reward deprivation.* Deprivation refers to the condition of having lost, or being prevented from having, something that is essential or vital (e.g., rewards or other pleasant experiences). In the realm of consumer behavior, deprivation has been linked to the desire to increase the amount of the commodity one feels deprived of (e.g., free time; Ackerman and Gross 2003). Rewards are pleasant stimuli that are administered closely subsequent to a target behavior. In LPs, the target behavior is the purchase of a product or service. The immediate consequence of such purchase behavior is a medium, e.g. LP points (Hsee et al. 2003; Van Osselaer et al. 2004). Thus, in keeping with Ryan, Mims and Koestner (1983), LP points are completion-contingent rewards: They depend upon completing a target task such as paying the price for a ski pass. Given their temporal contiguity, consumers will interpret medium payoff as an immediate reward resulting from their purchases. Therefore, higher levels of reward deprivation are expected to increase consumers’ susceptibility to the medium effect.

*Expertise.* Kivetz and Simonson (2003) have posited that consumers are less likely
to rely on proxy attributes (e.g., idiosyncratic fit) when they can meaningfully evaluate program value on the basis of the absolute quantities of efforts and rewards. Yet, when consumers have little expertise in assessing LPs, it may be difficult for them to make an informed judgment about a given program’s funding rate. This is particularly true when consumers make a singular evaluation of an LP. Consumers with higher levels of expertise are hence more likely to overcome their myopic focus on the most salient attributes of an LP (e.g., effort-to-medium payoff). This implies that consumers with lower levels of expertise in assessing LPs will respond more intensely to effort-to-medium payoff than their more knowledgeable peers. Overall, the following hypothesis is proposed:

**H23**: The medium effect will be more pronounced for consumers characterized by a strong (vs. weak) desire to maximize outcomes (H23a), high (vs. low) reward deprivation (H23b), and low (vs. high) expertise in assessing LPs (H23c).

### 4.5 Methodology

#### Sample

The sample consisted of $N = 1,366$ customers of a Swiss skiing area participating in an online market research study on LPs. 63.8% were male and 71.1% were between the ages of 21 and 50. Participants paid between nine and twelve visits to a skiing area throughout a typical season. Median disposable income was between CHF 4,000 and CHF 6,999 per month. Customers had agreed to be contacted by the skiing company via email for market research purposes. At the time of the survey, all of the participants were enrolled in the current LP which awarded rewards on the basis of purchases. Yet, in this LP, efforts and rewards were not linked via a medium.

#### Independent variables

*Relative medium position*. One of the two independent variables of the present research was consumers’ relative medium position (see Figure 11). To investigate the notion of a medium heuristic in both directions, this factor had three levels, namely (i) medium disadvantage (i.e., 30 LP points per visit in the present LP vs. 60 LP points per visit in a typical LP), (ii) medium equality (i.e., 60 LP points per visit in both the present LP and a typical LP), and (iii) medium advantage (i.e., 120 LP points per visit in the present LP vs. 60 LP points per visit in a typical LP).
Quality of funding rate. To test consumers’ preference for more medium in the face of changing fundamental outcomes, quality of funding rate was also varied across three levels, namely (i) status quo (i.e., ten visits earned one reward unit), (ii) improvement of 50% (i.e., ten visits yielded 1.5 reward units), and (iii) deterioration of 33% (i.e., ten visits merely brought ⅔ of a reward unit). Since the effort level corresponding to a certain amount of medium was held constant across LPs (i.e., one visit earned a certain number of LP points), quality of funding rate was experimentally manipulated by adjusting medium-to-outcome return accordingly. For example, in LP 5 (i.e., a status quo LP), one visit earned 60 LP points. Since 600 LP points were needed to obtain the reward, ten visits yielded one reward unit. In LP 8 (i.e., a deterioration LP), one visit also earned 60 LP points. However, in LP 8, the amount of medium required to obtain the reward was increased to 900 LP points. Thus, ten visits yielded only ⅔ of a reward unit, which implies a deterioration of 33% relative to the status quo.

Dependent and mediating variables
The operationalization and reliability (i.e., coefficient alpha) of the dependent, mediat-
ing, and moderating variables is given in the Appendix. Unless otherwise detailed, 7-point Likert scales were used.

Perceived program fairness. A three-item measure of fairness adopted from Vaidyanathan and Aggarwal (2003) was used to gauge consumers’ perceived program fairness.

Likelihood of joining LP. Consumers’ likelihood of joining a particular LP was assessed using a single-item measure that was also employed by Kivetz and Simonson (2003).

Attitudinal loyalty. Brand attitude was evaluated using a five-item measure proposed by Mitchell and Olson (1981). Five items were also adapted from Oliver and Swan’s (1989b) satisfaction scale to measure consumers’ anticipated satisfaction with a given LP. Loyalty intentions were captured through two items taken from Sirohi, McLaughlin and Wittink (1998). Three items featured in Zeithaml et al. (1996) were used to assess consumers’ willingness to spread positive word-of-mouth about a particular LP.

Moderating variables

Maximizing. Consumers’ desire to maximize outcomes was assessed using the original 13-item scale proposed by Schwartz et al. (2002).

Reward deprivation. Based on the notion that consumption is a potent source of self-rewarding behavior (see, e.g., Kivetz and Simonson 2002), reward deprivation was operationalized through customers’ self-reported monthly disposable income.

Expertise. Two measures of expertise in assessing LPs were derived. First, it was theorized that consumers who go skiing more often will also be more knowledgeable about the various LPs that are offered in the skiing sector. Thus, customers’ self-reported number of visits to skiing areas throughout a typical season was deemed an industry-specific measure of expertise. Second, based on the idea that exposure to various LPs is positively related to a consumer’s level of experience, age was included as a general proxy of expertise in evaluating LPs.

Procedure and experimental stimuli

Customers were contacted by the skiing company via an online newsletter asking them to participate in an online market research study on LPs. They were told that they would have the opportunity to evaluate an LP that could later be offered to them. Par-
Participants were randomly assigned to one of the nine conditions in a 3 (relative medium position: medium disadvantage vs. medium equality vs. medium advantage) × 3 (quality of funding rate: improvement vs. status quo vs. deterioration) between-subjects design (see Figure 11). In each condition, the features of a hypothetical LP were described. Specifically, customers were exposed to three pieces of information, i.e. (i) effort-to-medium payoff in the present LP (i.e., 30 vs. 60 vs. 120 LP points per visit, respectively), (ii) effort-to-medium payoff in a typical LP (i.e., 60 LP points), and (iii) medium-to-outcome return in the present LP (e.g., one reward unit required 600 LP points; see LP 5 in Figure 11). Explicitly, no information on the funding rate of a typical LP—or its medium-to-outcome return—was provided. Thus, consistent with the single-LP evaluation paradigm employed by the present paper, consumers were not only prevented from choosing between two or more LPs. In addition, any meaningful comparison between the target LP and a typical LP was impossible. The reward was a free lunch for two in one of the ski huts located in the skiing area. Customers responded to several questions aimed at gathering information on the dependent, mediating, moderating, and socio-demographic variables. At the end of the survey, customers were thanked. They also had the opportunity to participate in a lottery giving them the chance to win a ski pass.

4.6 Results

Insensitivity to an LP’s funding rate and the effect of effort-to-medium payoff

In a first step of testing H18, H19, and H20, a two-way MANOVA was performed. The result of Bartlett’s test of sphericity, \( \chi^2(20) = 5,040.16, p = .000 \), indicated sufficient correlation among the dependent measures. Thus, MANOVA was appropriate for analyzing the present data. Descriptive statistics for the dependent, mediating, and moderating variables are provided in Table 15. The joint effects of relative medium position and quality of funding rate on consumer behavior are illustrated in Figure 12. As shown in Table 16, there was no interaction between relative medium position and quality of funding rate—neither at the multivariate level nor at the univariate level. Moreover, quality of funding rate failed to yield a multivariate main effect. With the exception of a marginally significant effect for perceived program fairness (\( p = .070 \)), this finding was confirmed at the univariate level.
Table 15. Descriptive statistics for dependent, mediating, and moderating variables.

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Program Fairness$^a$</td>
<td>4.65</td>
<td>1.56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Likelihood of Joining LP</td>
<td>4.40</td>
<td>2.16</td>
<td>0.61</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brand Attitude$^a$</td>
<td>5.76</td>
<td>1.21</td>
<td>0.27</td>
<td>0.16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anticipated Satisfaction$^a$</td>
<td>3.37</td>
<td>1.60</td>
<td>0.74</td>
<td>0.66</td>
<td>0.32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loyalty Intentions$^a$</td>
<td>4.62</td>
<td>1.69</td>
<td>0.53</td>
<td>0.44</td>
<td>0.49</td>
<td>0.64</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive Word-of-Mouth$^a$</td>
<td>3.35</td>
<td>1.84</td>
<td>0.67</td>
<td>0.58</td>
<td>0.34</td>
<td>0.84</td>
<td>0.63</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximizing$^a$</td>
<td>3.18</td>
<td>0.85</td>
<td>0.09</td>
<td>0.04$^\dagger$</td>
<td>0.07</td>
<td>0.12</td>
<td>0.04$^\dagger$</td>
<td>0.10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reward Deprivation</td>
<td>3.00$^b$</td>
<td>1.36</td>
<td>−0.12</td>
<td>−0.05$^\dagger$</td>
<td>−0.07</td>
<td>−0.15</td>
<td>−0.05</td>
<td>−0.12</td>
<td>−0.14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industry-Specific Expertise</td>
<td>5.00$^c$</td>
<td>1.55</td>
<td>−0.03$^\dagger$</td>
<td>0.07</td>
<td>0.02$^\dagger$</td>
<td>0.02$^\dagger$</td>
<td>0.03$^\dagger$</td>
<td>0.03$^\dagger$</td>
<td>−0.04$^\dagger$</td>
<td>0.08</td>
<td></td>
</tr>
<tr>
<td>General Expertise</td>
<td>3.00$^d$</td>
<td>1.41</td>
<td>−0.05$^\dagger$</td>
<td>−0.01$^\dagger$</td>
<td>−0.02$^\dagger$</td>
<td>−0.07</td>
<td>−0.02$^\dagger$</td>
<td>0.00$^\dagger$</td>
<td>−0.15</td>
<td>0.56</td>
<td>0.12</td>
</tr>
</tbody>
</table>

Note: Means ($M$), standard deviations ($SD$), and bivariate correlations are reported. Unless otherwise detailed, bivariate correlations are significant at the .05 level (two-tailed).

$^a$ Items were averaged to derive scale scores.

$^b$ The median is given. The third category refers to customers reporting a monthly disposable income of between CHF 4,000 and CHF 6,999.

$^c$ The median is given. The fifth category refers to customers reporting a number of between nine and twelve visits to a skiing area throughout a typical season.

$^d$ The median is given. The third category refers to customers between 31 and 40 years of age.

† Not significant at the .05 level (two-tailed).
Figure 12. The joint effects of relative medium position and quality of funding rate on consumer behavior.

For relative medium position, a multivariate main effect was found. Thus, the vec-
tors of consumers’ mean scores on the dependent variables were not equivalent for medium disadvantage, medium equality, and medium advantage. This result was confirmed at the univariate level, all $p$s $\leq .011$. The main finding from the first step of the analysis is that customers were insensitive to an LP’s funding rate (i.e., effort-to-outcome return). At the same time, they responded to the number of LP points awarded per purchase (i.e., effort-to-medium payoff).

Table 16. MANOVA results for relative medium position and quality of funding rate.

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Multivariate $F$</th>
<th>Univariate $F$</th>
<th>df</th>
<th>$P$</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative Medium Position (RMP)</td>
<td>13.76$^a$</td>
<td>12, 2,704</td>
<td>.000</td>
<td>.058</td>
<td></td>
</tr>
<tr>
<td>Perceived Program Fairness</td>
<td>77.25</td>
<td>2, 1,357</td>
<td>.000</td>
<td>.102</td>
<td></td>
</tr>
<tr>
<td>Likelihood of Joining LP</td>
<td>19.16</td>
<td>2, 1,357</td>
<td>.000</td>
<td>.027</td>
<td></td>
</tr>
<tr>
<td>Brand Attitude</td>
<td>4.54</td>
<td>2, 1,357</td>
<td>.011</td>
<td>.007</td>
<td></td>
</tr>
<tr>
<td>Anticipated Satisfaction</td>
<td>44.78</td>
<td>2, 1,357</td>
<td>.000</td>
<td>.062</td>
<td></td>
</tr>
<tr>
<td>Loyalty Intentions</td>
<td>21.31</td>
<td>2, 1,357</td>
<td>.000</td>
<td>.030</td>
<td></td>
</tr>
<tr>
<td>Positive Word-of-Mouth</td>
<td>39.90</td>
<td>2, 1,357</td>
<td>.000</td>
<td>.056</td>
<td></td>
</tr>
<tr>
<td>Quality of Funding Rate (QFR)</td>
<td>.93$^b$</td>
<td>12, 2,704</td>
<td>.513</td>
<td>.004</td>
<td></td>
</tr>
<tr>
<td>Perceived Program Fairness</td>
<td>2.67</td>
<td>2, 1,357</td>
<td>.070</td>
<td>.004</td>
<td></td>
</tr>
<tr>
<td>Likelihood of Joining LP</td>
<td>1.54</td>
<td>2, 1,357</td>
<td>.194</td>
<td>.002</td>
<td></td>
</tr>
<tr>
<td>Brand Attitude</td>
<td>.13</td>
<td>2, 1,357</td>
<td>.877</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Anticipated Satisfaction</td>
<td>2.21</td>
<td>2, 1,357</td>
<td>.110</td>
<td>.003</td>
<td></td>
</tr>
<tr>
<td>Loyalty Intentions</td>
<td>.09</td>
<td>2, 1,357</td>
<td>.915</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Positive Word-of-Mouth</td>
<td>1.59</td>
<td>2, 1,357</td>
<td>.204</td>
<td>.002</td>
<td></td>
</tr>
<tr>
<td>RMP × QFR</td>
<td>1.08$^c$</td>
<td>24, 4,718</td>
<td>.363</td>
<td>.005</td>
<td></td>
</tr>
</tbody>
</table>

*Note. The RMP × QFR interaction was statistically insignificant at both the multivariate and univariate level. Therefore, no univariate results are reported.

$^a$ Based on Wilks’ lambda = .888.

$^b$ Based on Wilks’ lambda = .992.

$^c$ Based on Wilks’ lambda = .981.

In a second step, two a priori contrasts were calculated. To analyze the effect of medium disadvantage (advantage), consumers’ mean scores across LP 1, LP 4, and LP 7 (LP 3, LP 6, and LP 9) need to be compared with those across LP 2, LP 5, and LP 8 (see Figure 11). Given the set of directed hypotheses concerning the effect of effort-to-medium payoff on consumer behavior, one-sided $t$-tests were performed. The results of this planned comparison analysis are reported in Table 17.

*Perceived program fairness.* LPs providing medium advantage (disadvantage) were perceived as fairer (less fair) than LPs that yielded medium equality, thereby confirming H20.
**Likelihood of joining LP.** Medium disadvantage reduced the likelihood of consumers joining a given LP. The reverse was true for medium advantage. Therefore, H18 was corroborated.

**Attitudinal loyalty.** Medium disadvantage did not undermine customers’ brand attitude ($p = .408$). At the same time, medium advantage induced a more favorable attitude toward the brand. Even more consistent with H19, medium advantage led consumers to report greater anticipated satisfaction, higher loyalty intentions, and increased willingness to spread positive word-of-mouth about a given LP. Medium disadvantage had the exact opposite effect on the latter three measures. In sum, H19a was partially confirmed, whereas H19b, H19c, and H19d met with full empirical support.

### Table 17. Planned comparison analysis for the effect of medium disadvantage and medium advantage.

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Medium Disadvantage vs. Medium Equality</th>
<th>Medium Advantage vs. Medium Equality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Program Fairness</td>
<td>-.92 (-8.82) 873 .000</td>
<td>.33 (3.63) 1,003 .000</td>
</tr>
<tr>
<td>Likelihood of Joining LP</td>
<td>-.67 (-4.47) 745* .000</td>
<td>.25 (1.92) 1,003 .028</td>
</tr>
<tr>
<td>Brand Attitude</td>
<td>-.02 (-.23) 873 .408</td>
<td>.20 (2.63) 993* .004</td>
</tr>
<tr>
<td>Anticipated Satisfaction</td>
<td>-.71 (-6.97) 820* .000</td>
<td>.31 (3.08) 1,003 .001</td>
</tr>
<tr>
<td>Loyalty Intentions</td>
<td>-.42 (-3.60) 873 .000</td>
<td>.34 (3.32) 1,003 .001</td>
</tr>
<tr>
<td>Positive Word-of-Mouth</td>
<td>-.68 (-5.91) 828* .000</td>
<td>.44 (3.78) 1,003 .000</td>
</tr>
</tbody>
</table>

*Note. The mean response for medium equality was subtracted from the mean response for medium disadvantage and medium advantage, respectively. All $p$-values are one-tailed.*

### Violations of dominance

In testing the notion of a medium-driven violation of dominance, six *a priori* contrasts that are particularly informative from a marketing perspective were calculated (see Figure 11). Four contrasts apply to companies whose LP currently provides medium disadvantage, i.e. lower effort-to-medium payoff than a typical LP. These planned comparisons address the question whether the failure of an LP with an attractive funding rate may be due to medium disadvantage. In addition, they help assess whether a company may cut down on the funding rate as it increases effort-to-medium payoff. The first contrast is between LP 1 and LP 5, the second contrast juxtaposes LP 1 with LP 6, the third contrast compares LP 1 with LP 8, and the fourth contrast is between LP 1 and LP 9.
Table 18. Testing for violations of dominance: Results of the planned comparison analysis.

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Contrast 1: LP 1 vs. LP 5</th>
<th></th>
<th></th>
<th></th>
<th>Contrast 2: LP 1 vs. LP 6</th>
<th></th>
<th></th>
<th></th>
<th>Contrast 3: LP 1 vs. LP 8</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Δ</td>
<td>df</td>
<td>t</td>
<td>p</td>
<td>Δ</td>
<td>df</td>
<td>t</td>
<td>p</td>
<td>Δ</td>
<td>df</td>
<td>t</td>
<td>p</td>
</tr>
<tr>
<td>Perceived Program Fairness</td>
<td>.88</td>
<td>288</td>
<td>4.88</td>
<td>.000</td>
<td>1.22</td>
<td>202e</td>
<td>6.75</td>
<td>.000</td>
<td>.71</td>
<td>288</td>
<td>3.75</td>
<td>.000</td>
</tr>
<tr>
<td>Likelihood of Joining LP</td>
<td>.52</td>
<td>211e</td>
<td>1.93</td>
<td>.028</td>
<td>1.01</td>
<td>209e</td>
<td>3.74</td>
<td>.000</td>
<td>.37</td>
<td>288</td>
<td>1.35</td>
<td>.090</td>
</tr>
<tr>
<td>Brand Attitude</td>
<td>−.05†</td>
<td>288</td>
<td>−.33</td>
<td>.370</td>
<td>.16</td>
<td>187e</td>
<td>1.10</td>
<td>.138</td>
<td>.07</td>
<td>288</td>
<td>.42</td>
<td>.337</td>
</tr>
<tr>
<td>Anticipated Satisfaction</td>
<td>.75</td>
<td>288</td>
<td>4.12</td>
<td>.000</td>
<td>1.05</td>
<td>291</td>
<td>5.53</td>
<td>.000</td>
<td>.40</td>
<td>288</td>
<td>2.19</td>
<td>.015</td>
</tr>
<tr>
<td>Loyalty Intentions</td>
<td>.38</td>
<td>288</td>
<td>1.84</td>
<td>.034</td>
<td>.74</td>
<td>214e</td>
<td>3.60</td>
<td>.000</td>
<td>.43</td>
<td>288</td>
<td>2.12</td>
<td>.018</td>
</tr>
<tr>
<td>Positive Word-of-Mouth</td>
<td>.62</td>
<td>288</td>
<td>3.00</td>
<td>.002</td>
<td>1.25</td>
<td>265e</td>
<td>5.92</td>
<td>.000</td>
<td>.43</td>
<td>288</td>
<td>2.06</td>
<td>.021</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Contrast 4: LP 1 vs. LP 9</th>
<th></th>
<th></th>
<th></th>
<th>Contrast 5: LP 5 vs. LP 9</th>
<th></th>
<th></th>
<th></th>
<th>Contrast 6: LP 2 vs. LP 9</th>
<th></th>
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<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Δ</td>
<td>df</td>
<td>t</td>
<td>p</td>
<td>Δ</td>
<td>df</td>
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<td>p</td>
<td>Δ</td>
<td>df</td>
<td>t</td>
<td>p</td>
</tr>
<tr>
<td>Perceived Program Fairness</td>
<td>.87</td>
<td>267</td>
<td>4.47</td>
<td>.000</td>
<td>−.01†</td>
<td>333</td>
<td>−.06</td>
<td>.476</td>
<td>.07</td>
<td>313</td>
<td>.39</td>
<td>.349</td>
</tr>
<tr>
<td>Likelihood of Joining LP</td>
<td>.39</td>
<td>222e</td>
<td>1.41</td>
<td>.077</td>
<td>−.13†</td>
<td>333</td>
<td>−.57</td>
<td>.284</td>
<td>−.11†</td>
<td>313</td>
<td>−.45</td>
<td>.327</td>
</tr>
<tr>
<td>Brand Attitude</td>
<td>.17</td>
<td>267</td>
<td>1.07</td>
<td>.144</td>
<td>.22</td>
<td>333</td>
<td>1.62</td>
<td>.053</td>
<td>.28</td>
<td>313</td>
<td>1.96</td>
<td>.026</td>
</tr>
<tr>
<td>Anticipated Satisfaction</td>
<td>.78</td>
<td>267</td>
<td>3.93</td>
<td>.000</td>
<td>.02</td>
<td>333</td>
<td>.14</td>
<td>.445</td>
<td>.07</td>
<td>313</td>
<td>.37</td>
<td>.355</td>
</tr>
<tr>
<td>Loyalty Intentions</td>
<td>.69</td>
<td>267</td>
<td>3.24</td>
<td>.001</td>
<td>.31</td>
<td>333</td>
<td>1.71</td>
<td>.044</td>
<td>.44</td>
<td>313</td>
<td>2.30</td>
<td>.011</td>
</tr>
<tr>
<td>Positive Word-of-Mouth</td>
<td>.81</td>
<td>259e</td>
<td>3.71</td>
<td>.000</td>
<td>.18</td>
<td>333</td>
<td>.91</td>
<td>.182</td>
<td>.15</td>
<td>313</td>
<td>.72</td>
<td>.238</td>
</tr>
</tbody>
</table>

*Note.* The mean response for the first LP was subtracted from the mean response for the second LP. All p-values are one-tailed.

* Equality of error variances not assumed.

† The effects, while insignificant, were not in the hypothesized direction.
Another two contrasts were calculated that apply to sellers whose LP currently yields medium equality, i.e. the same effort-to-medium payoff as a typical LP. These planned comparisons are also concerned with the question whether companies may turn an LP with an unattractive funding rate into a success by providing medium advantage. Similarly, they help clarify whether a company may realize a cost reduction as it awards customers with more medium for their effort. Contrast 5 is between LP 5 and LP 9, while contrast 6 compares LP 2 with LP 9. These latter two comparisons may also be viewed from the perspective of a seller whose LP originally offered medium advantage but an unattractive funding rate: They help clarify whether or not that seller should offer a more attractive funding rate to counteract a competitor’s attempt to achieve medium equality.

On the analytical side, six independent-samples *t*-tests (one-tailed) were performed to compare mean responses between pairs of LPs. As shown in Table 18, the contrast analysis revealed a preference for more medium in the face of adverse changes in an LP’s funding rate.

As to contrast 1, consumers preferred LP 5 to LP 1 even though LP 5 has a less favorable funding rate than LP 1 (see Figure 11). Yet, customers’ attitude toward the brand was the same in LP 1 and LP 5 (*p* = .370). Similarly, a supplementary analysis revealed that LP 8 was generally favored over LP 4, all ΔMs ≥ .49, all *t*(304)s ≥ 2.53, all *ps* ≤ .006. Again, brand attitude was equally affected by these two programs (*p* = .165). The results for contrast 2 parallel those for contrast 1. Consumers generally preferred LP 6 to LP 1. Customers’ brand attitude did not differ between these two LPS (*p* = .138), however. In a similar vein, further analyses showed that LP 9 consistently outperformed LP 4, all ΔMs ≥ .24, all *ts* ≥ 1.70, all *ps* ≤ .046. The findings for contrast 3 suggest that LP 8 was generally favored over LP 1. Yet, for likelihood of joining LP, this effect was marginally significant (*p* = .090), while it was insignificant for brand attitude (*p* = .337). The same pattern of results was observed for contrast 4. Consumers liked LP 9 better than LP 1. Again, the effect for likelihood of joining LP achieved marginal significance (*p* = .077), while that for brand attitude was insignificant (*p* = .144). With respect to contrast 5, consumers were generally indifferent between LP 5 and LP 9. Consistent with H22, however, they reported higher loyalty intentions in LP 9 than in LP 5 (*p* = .044). The enhancement in brand attitude triggered by LP 9 was marginally significant (*p* = .053). A supplementary analysis revealed that consumers consistently preferred LP 6 to LP 2, all ΔMs ≥ .28, all *ts* ≥ 1.96, all *ps* ≤ .026. Finally,
the results for contrast 6 are similar to those for contrast 5. Consumers were generally indifferent between LP 2 and LP 9. Yet, LP 9 was associated with a more positive brand attitude ($p = .026$) and greater intentions to be loyal ($p = .011$) than LP 2. In sum, H22 was corroborated.

**Moderators of the medium effect**

In a first step of testing H23, customers were divided into two groups based on a median split of their scores on the four moderating variables. The resulting factors were combined with relative medium position to form two-way factorial designs. In a second step, eight 2 (relative medium position: medium advantage/disadvantage vs. medium equality) × 2 (moderator: level 1 vs. level 2) MANOVAs were performed—each four comparing medium equality with medium advantage and medium disadvantage, respectively. Multivariate interactions were assessed based on Wilks’ lambda.

*Maximizing.* The effect of effort-to-medium payoff was not moderated by consumers’ desire to maximize outcomes. This result held at the multivariate level, both $F$s ≤ .99, both $p$s ≥ .434, and at the univariate level, all $F$s ≤ 3.51, all $p$s ≥ .061. Thus, H23a was not confirmed.

*Reward deprivation.* High (low) reward deprivation was operationalized by a monthly disposable income of less than CHF 4,000 (35.3%) (CHF 4,000 or more [64.7%]). In the context of medium disadvantage, no multivariate interaction was found, $F(6, 866) = .49, p = .817$. This result was confirmed at the univariate level, all $F$s ≤ 1.18, all $p$s ≥ .277. Similarly, reward deprivation failed to moderate the effect of medium advantage at the multivariate level, $F(6, 996) = 1.26, p = .273$. However, five of the univariate interactions were statistically significant, all $F(1, 1,001)s ≥ 3.89$, all $p$s ≤ .049, while the univariate interaction for loyalty intentions achieved marginal significance, $F(1, 1,001) = 3.72, p = .054$. As shown in Figure 13, consumers reporting high levels of reward deprivation, i.e. low income, responded more intensely to medium advantage (all $\Delta M$s ≥ .38) than those reporting low levels of reward deprivation, i.e. high income, (all $\Delta M$s ≤ .24). Overall, H23b was partially confirmed.
**Perceived Program Fairness**

**Likelihood of Joining LP**

**Brand Attitude**

**Anticipated Satisfaction**

**Loyalty Intentions**

**Positive Word-of-Mouth**

*Figure 13.* Reward deprivation as a moderator of the effect of medium advantage on consumer behavior.
**Expertise.** Low (high) general expertise in assessing LPs was operationalized by an age of 30 years or less (42.6%) (31 years or more [57.4%]). There were no multivariate interactions, both $F$s ≤ 1.15, both $ps ≥ .334$. With one exception, this result was confirmed at the univariate level, all $F$s ≤ 1.30, all $ps ≥ .254$. That is, the increase in perceived program fairness as a result of medium advantage was larger for younger consumers ($ΔM = .55$) than for older ones ($ΔM = .15$), $F(1, 998) = 4.71, p = .030$. This finding is consistent with H23c.

Low (high) industry-specific expertise in evaluating LPs was operationalized by twelve visits or less (50.3%) (13 visits or more [49.7%]) to a skiing area throughout a typical season. Again, no multivariate interactions were found, both $F$s ≤ 1.66, both $ps ≥ .127$. In the context of medium advantage, this finding was confirmed at the univariate level, all $F$s ≤ 1.47, all $ps ≥ .225$. By contrast, in the context of medium disadvantage, the univariate interactions for perceived program fairness, likelihood of joining LP, anticipated satisfaction, and loyalty intentions were significant, all $F(1, 871)s ≥ 3.92$, all $ps ≤ .048$. Inconsistent with expectations, however, customers reporting greater industry-specific expertise, i.e. those who go skiing more often, responded more intensely to medium disadvantage (all $ΔMs ≤ −.65$) than their less knowledgeable peers, i.e. those who go skiing less often, (all $ΔMs ≥ −.62$). Given the ambiguous evidence, H23c was not corroborated.

**The mediating role of perceived program fairness**

In a first step of testing H21, SEM-7 was estimated. It is shown in Figure 14. In SEM-7, likelihood of joining LP, brand attitude, anticipated satisfaction, loyalty intentions, and positive word-of-mouth were regressed on two dummy variables representing medium advantage and medium disadvantage, respectively. Perceived program fairness served as a mediator. To improve the fit of the initial SEM-7, $\chi^2(164) = 1,771.58$ ($p = .000$), RMSEA = .085, CFI = .941, the error terms of several manifest variables representing the same latent dependent variable were allowed to covary. The refined SEM-7, $\chi^2(160) = 682.78$ ($p = .000$), RMSEA = .049, CFI = .981, met Hu and Bentler’s (1999) joint criteria for global fit. It served as input to the mediation analysis, the results of which were unaffected by model refinement, though.
Figure 14. Perceived program fairness as a mediator of the effect of effort-to-medium payoff on likelihood of joining LP and attitudinal loyalty (SEM-7).

In a second step, Sobel tests were performed to investigate the mediating role of perceived program fairness (Baron and Kenny 1986; Sobel 1982). Based on H20 as well as the assumption that perceived program fairness will be positively, rather than negatively, related to likelihood of joining LP and attitudinal loyalty (see also...
Herrmann et al. 2007; Oliver and Swan 1989a, b), one-tailed tests were performed on the structural equation coefficients. Given this set of directed hypotheses, one-sided z-tests were conducted to test for mediation with greater statistical power. Inspection of the unstandardized structural equation coefficients in Figure 14 revealed that one-sided tests were appropriate. The results of the mediation analysis are reported in Table 19.

Table 19. Perceived program fairness as a mediator of the effect of effort-to-medium payoff on likelihood of joining LP and attitudinal loyalty: Results of the mediation analysis for SEM-7.

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Mediator</th>
<th>Likelihood of Joining LP</th>
<th>Brand Attitude</th>
<th>Anticipated Satisfaction</th>
<th>Loyalty Intentions</th>
<th>Positive Word-of-Mouth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium Advantage(a)</td>
<td>Perceived Program Fairness</td>
<td>3.55***</td>
<td>3.37***</td>
<td>3.55***</td>
<td>3.51***</td>
<td>3.55***</td>
</tr>
<tr>
<td>Medium Disadvantage(a)</td>
<td></td>
<td>−8.60***</td>
<td>−6.76***</td>
<td>−8.71***</td>
<td>−8.11***</td>
<td>−8.69***</td>
</tr>
</tbody>
</table>

Note. Numbers denote Sobel test-statistics, i.e. z-values.

* Technically speaking, relative medium position is the independent variable. To facilitate interpretation, it is here referred to in terms of the dummy variables that represent medium advantage and medium disadvantage, respectively.

*** \(p < .001\), one-tailed.

Perceived program fairness consistently mediated the effect of both medium advantage and medium disadvantage on likelihood of joining LP, brand attitude, anticipated satisfaction, loyalty intentions, and positive word-of-mouth. These findings suggest that effort-to-medium payoff exerts a causal influence on consumers’ desire to participate in a given LP as well as their attitudinal loyalty through perceptions of program (un)fairness.

The mediating role of perceived program fairness may be defined more closely by assessing whether mediation was complete or incomplete. In doing so, the statistical significance of the ten direct effects of effort-to-medium payoff on consumer behavior was examined. When the mediating construct (i.e., perceived program fairness) is controlled for, full mediation would be indicated by non-significant direct effects of medium advantage and medium disadvantage on likelihood of joining LP and the various measures of attitudinal loyalty. Figure 14 shows that nine out of the ten direct effects were zero, suggesting that mediation was generally complete, all \(\Delta \chi^2(1) \leq 3.13\), all \(ps \geq .077\). Yet, the effect of medium disadvantage on brand attitude was partially medi-
ated by perceived program fairness, \( \Delta \chi^2(1) = 6.01, p = .014 \). The finding that medium disadvantage was positively, rather than negatively, related to brand attitude suggests that perceived program fairness acted as a suppressor variable in SEM-7 (Kenny et al. 1998; MacKinnon et al. 2000). Overall, H21 was confirmed.

### 4.7 Discussion and conclusions

#### Findings

The goal of this paper was to develop a deeper understanding of how media (e.g., LP points) shape consumer preferences toward LPs. The results of a field experiment involving real customers are in line with the present study’s main proposition: When faced with the need to make a singular evaluation of an LP, consumers employ a medium heuristic to infer program value. Using the amount of LP points awarded per purchase as a heuristic cue of program appeal, consumers respond to effort-to-medium payoff (i.e., irrelevant information). Specifically, medium advantage (disadvantage) enhances (diminishes) perceptions of program fairness and increases (decreases) the likelihood of joining a given LP. In addition, medium advantage (disadvantage) generally results in higher (lower) levels of attitudinal loyalty such as higher (lower) anticipated satisfaction, intentions to be loyal, and willingness to spread positive word-of-mouth about a particular LP. At the same time, consumers are negligent of an LP’s funding rate (i.e., relevant information). As a consequence, consumers prefer LPs with high effort-to-medium payoff but an unfavorable funding rate to LPs with low effort-to-medium payoff but a favorable funding rate. This is consistent with the notion that over-application of the medium heuristic will result in violations of dominance. Moreover, the moderator analysis has revealed that the preference for above-average effort-to-medium payoff is particularly pronounced among low-income consumers, i.e. those held to be more deprived of consumption-related rewards. Finally, the mediation analysis has demonstrated that effort-to-medium payoff exerts its causal influence on likelihood of joining LP and attitudinal loyalty through changes in perceived program fairness. These findings, suggesting that consumers are highly susceptible to the medium effect when dealing with LPs, have several implications.

#### Theoretical and practical implications

**Theoretical implications.** The present results are consistent with previous research demonstrating that irrelevant attributes have a pervasive influence on consumer behav-
ior (see Van Osselaer et al. 2004 for additional cites). A medium is normatively irrelevant. Yet, media seem to be powerful incentives—not only in educational settings (e.g., tokens) but also in a consumption-related context (e.g., LP points). As shown by Hsee et al. (2003), Shi et al. (2006), Van Osselaer et al., and the present research, media shape economic decision-making (e.g., the decision whether to enroll, and remain, in a particular LP), possibly shifting fundamental outcomes (e.g., market share). The finding that consumers favor LPs with high effort-to-medium payoff but an unfavorable funding rate over LPs with low effort-to-medium payoff but a favorable funding rate provides strong evidence of the importance of media. It is in line with the idea that a medium is more than merely a tie-breaker between equally attractive options (Van Osselaer et al.; Hsee et al.). Specifically, such a medium-driven violation of dominance challenges the notion that media are inherently worthless—and thus calls into question the distinction between media and ultimate rewards.

Unlike previous studies, the present paper provides direct evidence to support the hypothesis that media influence a broad variety of higher-level evaluations. These include judgments of program fairness, the decision to join a given LP, and several facets of attitudinal loyalty (e.g., loyalty intentions or willingness to spread positive word-of-mouth). At the same time, the present findings are in line with the explanation for the medium effect championed by Hsee et al. (2003), i.e. psychological myopia. Yet, the present research suggests a parsimonious explanation of the medium effect, namely the use of a rather crude medium heuristic (e.g., ‘more medium is better’). When viewed from this perspective, the preference for more medium may have led decision-makers to exert greater effort for a less enjoyed outcome when offered 100 vs. 60 points (Hsee et al.), to prefer points and vouchers to points only (Shi et al. 2006), and to favor 300 LP points over 200 LP points on a given choice occasion (Van Osselaer et al. 2004).

The results of the mediation analysis suggest that effort-to-medium payoff exerts its causal influence on consumer behavior (i.e., likelihood of joining LP and attitudinal loyalty) through changes in perceived program fairness. Thus, the present findings add to the growing body of literature that provides empirical evidence of perceived fairness translating marketing action into customer loyalty (e.g., Herrmann et al. 2007; Liao 2007; Oliver and Swan 1989a, b). They also highlight the idea that perceived fairness is a crucial antecedent of sustainable buyer-seller relationships (see Xia et al. 2004). Specifically, the present findings imply that loyalty is driven by a desire for fair, rather
than value-maximizing, economic exchange. That is, when customers consider switching from an LP with high effort-to-medium payoff but an unfavorable funding rate to an LP with low effort-to-medium payoff but a favorable funding rate, they may anticipate that this will violate their notion of fairness—and hence be loyal. In this regard, the findings of the present paper suggest that both non-trivial attributes (e.g., service recovery performance or price) and trivial attributes (e.g., effort-to-medium payoff) are capable of shaping consumer perceptions of (un)fairness in economic transactions.

The moderator analysis has revealed that maximizers and satisficers as well as younger and older consumers are equally affected by effort-to-medium payoff. This suggests a pervasive influence of media on economic decision-making irrespective of consumers’ desire to maximize outcomes and their general expertise in assessing LPs. By contrast, consumers with low income respond more intensely to medium advantage than their high-income peers. This finding is consistent with a deprivation-based account of psychological myopia. It also suggests that media are perceived as currencies (Hsee et al. 2003) and that abundance of LP points may create an illusion of wealth. In addition, frequent customers are more strongly affected by medium disadvantage than their less frequently visiting peers. This result, however, is consistent with an involvement-based account of psychological myopia rather than an explanation that centers on industry-specific expertise in assessing LPs.

The present findings, suggesting that consumers use a medium heuristic to infer program value, blend in well with those reported by Kivetz and Simonson (2003). The latter authors have shown that consumers employ an idiosyncratic fit heuristic to assess program attractiveness. Jointly, these findings highlight the leitmotiv of the present paper: Effort, medium, and reward are all potential sources of relative advantage, which in turn drives perceptions of program value. In the context of LPs, (irrelevant) social comparison information appears to be closely related to perceived value. This implies that a consumer’s assessment of buyer-seller relationship quality (e.g., the perceived value of a given LP) is particularly sensitive to how he or she is treated compared with other consumers. Thus, the relative advantage heuristic is proposed as a framework for studying consumer preferences toward LPs (see Figure 10).

Practical implications. From a company perspective, the present results suggest that effort-to-medium payoff is an important, yet overlooked, factor contributing to program success. Consumers care about how many LP points they receive for their effort generally—not just on a given purchase occasion (see Van Osselaer et al. 2004).
At the same time, consumers are much less concerned with an LP’s funding rate. Thus, media may be leveraged to raise profits. Adjusting an LP’s effort-to-medium payoff is virtually costless. Yet, it might boost sales. Similarly, cutting down on the funding rate will help save costs—without necessarily jeopardizing turnover. The results for the six contrasts in Table 18 are consistent with this line of reasoning. They reveal that medium disadvantage may be one reason why LPs with an attractive funding rate fail in the marketplace (see Kivetz and Simonson 2002). Also, the present findings imply that offering a more attractive funding rate to counteract a competitor’s attempt to achieve medium equality will be ineffective. From this perspective, many real-world LPs might be overgenerous on the reward side, i.e. too costly.

To harness the medium effect, companies need to focus consumers’ attention on the medium. That is, they have to devise LPs that increase the odds of consumers relying on effort-to-medium payoff in judging program value. To prevent a direct comparison of funding rates, marketers might set up new LPs that are dissimilar to existing ones. Such LPs would have to be alignable with respect to effort-to-medium payoff and non-alignable in other respects. Sellers may also create complex multi-medium LPs (see Shi et al. 2006) that induce high cognitive load, thereby increasing consumers’ myopic focus on media. Once programs are crafted that direct consumers’ attention toward the medium, marketers could use comparative advertising to encourage a direct comparison between effort-to-medium payoffs of competing LPs. Sellers have several options to induce perceptions of medium advantage. These include generally providing above-average effort-to-medium payoff, tying effort-to-medium payoff to customer loyalty, and/or inflating average effort-to-medium payoff over time, for example.

Companies might also use media to buffer the repercussions of negative performance. Media (e.g., LP points) are capable of enhancing perceptions of fairness. Thus, LP points could be used to compensate consumers for service failure (e.g., an overbooked flight). Also, when restructuring or streamlining an LP’s portfolio of rewards, sellers may provide an extra allowance of medium to avoid a customer backlash. In a similar vein, providing medium advantage may give sellers the opportunity to disguise a cost-saving deterioration of an LP’s funding rate.

From a consumer perspective, the present findings imply that buyers—especially those with lower incomes—should be educated: Their penchant for more medium may not be in their best long-term interest. The need to increase awareness is highlighted
by the possibility that LP points influence consumer behavior through an unconscious process (Van Osselaer et al. 2004). It is only when consumers are cognizant about their susceptibility to media that they can effectively trade off their desire to increase welfare with their longing for instant gratification.

**Limitations and avenues for future research**

In studying consumers’ singular evaluation of an LP, the present paper abandoned the multi-LP choice paradigm employed by previous research (e.g., Hsee et al. 2003; Van Osselaer et al. 2004). It is unclear whether similar results will be obtained in the rare case when consumers are required to choose between LPs with different effort-to-medium payoffs and/or varying funding rates. Also, the current research was set in the skiing sector, studying consumers’ evaluations and behavioral intentions. A rather simplistic LP was used. Future research should examine whether the present findings generalize to other industries (e.g., airlines) and experimental stimuli (e.g., more complex LPs) as well as actual behavior (e.g., price sensitivity, retention, or sales).

Investigating in greater detail why—and how—media shape consumer behavior represents another worthwhile research endeavor. Media, or effort-to-medium payoff, may not only trigger perceptions of (un)fairness. For example, Van Osselaer et al. (2004) have insinuated that media may command attention because they “are imbued with a value of their own” (p. 258). Similarly, Shi et al. (2006) have noted that “consumers might gain value” (p. 5) from LP points. Also, Hsee et al. (2003) have argued that medium maximization may not be irrational since “the accumulation of a medium, especially when it requires effort, may engender a sense of accomplishment and self-efficacy [...] and generate joy in and of itself” (p. 13). Thus, it is conceivable that media influence consumer decision-making because they are perceived as valuable, rewarding, and enjoyable. This would be strongly at odds with the notion that media are inherently worthless.

More research is also needed to understand which factors moderate consumers’ susceptibility to the medium effect. With respect to individual difference variables, the moderating effect of reward deprivation should be replicated. In addition, future research might analyze the moderating role of consumers’ involvement or tolerance for delay of gratification. With respect to medium characteristics, it will be fruitful to learn whether the semantics of media (e.g., “points” vs. “loyalty points”) moderate their appeal to consumers.
Future research may also investigate how marketing action can be used to amplify the medium effect. For example, companies might further increase the appeal of high effort-to-medium payoff by making it contingent upon reaching a certain requirement level: When customers start with average effort-to-medium payoff and become eligible for high effort-to-medium payoff only after a predetermined number of purchases, they may view higher effort-to-medium payoff as even more advantageous, or exclusive. In addition, the medium effect could interact with multi-medium LPs (Shi et al. 2006). Here, it will be interesting to learn whether the creation of medium advantage in earlier or later stages of such programs is more effective.

More work is needed to identify boundary conditions of the medium effect in LPs. In industries with established standards concerning an adequate funding rate (e.g., airlines), consumers may be less susceptible to the medium effect. Also, astronomically large medium advantage (i.e., medium inflation) may create reactance (see Kivetz 2005). In a similar vein, media (i.e., tangible extrinsic rewards) may undermine consumers’ preference for, or intrinsic motivation to buy, a specific brand (see, e.g., Deci, Koestner and Ryan 1999). Studying whether the medium effect wears off over time represents another worthwhile research endeavor: Consumers may habituate and/or simply lose their interest in media.

Finally, future research is encouraged to build on the proposed unifying framework (see Figure 10) and examine whether consumers use a reward heuristic to judge program value. For example, it is plausible to assume that hedonic rewards lead consumers to infer a larger relationship investment on the part of the company than utilitarian rewards with the same value. Thus, reward characteristics may influence consumer behavior (e.g., loyalty) through perceptions of a seller’s relationship investment. The present paper hopes to spur research in these, and other, directions.

4.8 References


### Appendix: Dependent, mediating, and moderating variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th># of Items</th>
<th>Measure(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Program Fairness</td>
<td>.94</td>
<td>3</td>
<td>The present loyalty program is: “very unfair” vs. “very fair”; “very unreasonable” vs. “very reasonable”; “very unacceptable” vs. “very acceptable”. 7-point scales were used. Adapted from Vaidyanathan and Aggarwal (2003).</td>
</tr>
<tr>
<td>Likelihood of Joining LP</td>
<td>—</td>
<td>1</td>
<td>I would like to participate in this loyalty program. A 7-point scale anchored at “strongly disagree” and “strongly agree” was used. Adapted from Kivetz and Simonson (2003).</td>
</tr>
<tr>
<td>Brand Attitude</td>
<td>.94</td>
<td>5</td>
<td>The decision to go skiing in (brand) is smart. Buying (brand) is a good decision. I think (brand) is a satisfactory brand. I think (brand) has a lot of beneficial characteristics. I have a favorable opinion of (brand). All 7-point scales anchored at “strongly disagree” and “strongly agree”. Adapted from Mitchell and Olson (1981).</td>
</tr>
<tr>
<td>Anticipated Satisfaction</td>
<td>.93</td>
<td>5</td>
<td>This is one of the best loyalty programs I could participate in. This loyalty program is exactly what I need. I would be satisfied with my decision to enroll in this loyalty program. My choice to participate in this loyalty program would be a wise one. I will truly enjoy participation in this loyalty program. All 7-point scales anchored at “strongly disagree” and “strongly agree”. Adapted from Oliver and Swan (1989b).</td>
</tr>
<tr>
<td>Loyalty Intentions</td>
<td>.77</td>
<td>2</td>
<td>Given the present loyalty program, the likelihood that I will continue to go skiing in (brand) is: Given the present loyalty program, the likelihood that I will spread positive word-of-mouth about (brand) is. Both 7-point scales anchored at “very low” and “very high”. Adapted from Sirohi et al. (1998).</td>
</tr>
<tr>
<td>Positive Word-of-Mouth</td>
<td>.94</td>
<td>3</td>
<td>I will say positive things about this loyalty program to other people. I will recommend participating in this loyalty program to someone who seeks my advice. I will encourage friends and relatives to enroll in this loyalty program. All 7-point scales anchored at “strongly disagree” and “strongly agree”. Adapted from Zeithaml et al. (1996).</td>
</tr>
<tr>
<td>Maximizing</td>
<td>.71</td>
<td>13</td>
<td>No matter how satisfied I am with my job, it’s only right for me to be on the lookout for better opportunities. No matter what I do, I have the highest standards for myself. I never settle for the second best. Whenever I’m faced with a choice, I try to imagine what all the other possibilities are, even ones that aren’t present at the moment. These are five sample items of the original 13-item scale used in the present study. All 7-point scales anchored at “strongly disagree” and “strongly agree”. Adapted from Schwartz et al. (2002).</td>
</tr>
<tr>
<td>Reward Deprivation (= Monthly Disposable Income)</td>
<td>—</td>
<td>1</td>
<td>Monthly disposable income: “less than CHF 2,000”; “CHF 2,000 thru CHF 3,999”; “CHF 4,000 thru CHF 6,999”; “CHF 7,000 thru CHF 9,999”; “CHF 10,000 or more”; “I do not wish to report”.</td>
</tr>
<tr>
<td>General Expertise (= Age)</td>
<td>—</td>
<td>1</td>
<td>Age: “20 or younger”; “21 thru 30”; “31 thru 40”; “41 thru 50”; “51 thru 60”; “61 or older”.</td>
</tr>
<tr>
<td>Industry-Specific Expertise (= Number of Visits throughout a Season)</td>
<td>—</td>
<td>1</td>
<td>Number of visits to skiing areas throughout a typical season: “0”; “1 thru 2”; “3 thru 4”; “5 thru 8”; “9 thru 12”; “13 thru 24”; “25 or more”.</td>
</tr>
</tbody>
</table>
5 Valuable, rewarding, and enjoyable: Consumer hedonics and the rationality of myopically maximizing media\(^5\)

5.1 Abstract
Marketing research on irrelevant attributes has demonstrated a pervasive influence of media (e.g., LP points) on consumer decision-making. Still, scholarly understanding of the medium effect is limited. Therefore, the research agenda for this paper is to clarify why media do matter to consumers. Results of a field experiment (\(N = 1,366\)) demonstrate that consumers use the amount of LP points awarded per purchase as a cue of program attractiveness. At the same time, they are insensitive to an LP’s funding rate. A stable preference for more LP points in the face of adverse shifts in a program’s funding rate reveals that media provide consumers with value, reward, and a pleasant affective experience. Low-income consumers are particularly responsive to more medium. In addition, the effect of LP points on consumer behavior (i.e., likelihood of joining an LP and loyalty intentions) is mediated by perceived program value, perceived reward, and consumers’ positive and negative affective responses. Finally, the interplay between these variables is consistent with appraisal theory. Results suggest that medium maximization may not be irrational from a consumer perspective. Implications are discussed.

5.2 Introduction
Marketing research on irrelevant attributes has revealed a pervasive influence of media (e.g., LP points) on consumer decision-making. In a series of experimental studies, Hsee et al. (2003) found evidence of myopic medium maximization. Subjects failed to cancel the influence of a medium and hence made suboptimal choices. For example, to receive more medium (e.g., 100 vs. 60 points), they worked longer for a less enjoyed outcome. That is, subjects maximized effort-to-medium payoff rather than effort-to-outcome return. In a similar vein, Van Osselaer et al. (2004) have demonstrated that media are overvalued and that they may function as more than a tie-breaker between equivalent options. On a given choice occasion, subjects’ choices between two hypothetical airlines were biased toward higher, yet irrelevant, LP points—even though truly discriminating price information was available. Finally, Shi et al. (2006) found subjects to construe participation in LPs as a goal-directed activity. Multi-medium

\(^5\) Co-author: Andreas Herrmann.
LPs, linking effort and outcome via points and vouchers, outperformed functionally equivalent single-medium LPs where effort and outcome were intermediated by points only.

While the medium effect is well-documented, scholarly understanding of why media do matter is incomplete. Hsee et al. (2003) have explained the medium effect in terms of psychological myopia. Yet, this account has limited explanatory power because it remains silent on what exactly leads decision-makers to act myopically. At the same time, Van Osselaer et al. (2004) have insinuated that media may be difficult to ignore because they “are imbued with a value of their own” (p. 258). Similarly, Shi et al. (2006) have noted that “consumers might gain value” (p. 5) from LP points. Also, Hsee et al. have argued that medium maximization may not be irrational since “the accumulation of a medium, especially when it requires effort, may engender a sense of accomplishment and self-efficacy […] and generate joy in and of itself” (p. 13). Still, the above three papers have provided only indirect evidence supporting these conjectures. Thus, in an attempt to test the reality of consumer hedonics directly, the present paper investigates whether media provide consumers with value, reward, and a pleasant affective experience. In doing so, LPs are chosen as the research context for two main reasons.

First, LPs are of prime interest from a consumer research perspective. In recent years, LPs have become a ubiquitous marketing-mix tool to enhance customer loyalty in a broad variety of industries (Kivetz and Simonson 2002). LPs offer sales-contingent rewards and create perceived switching costs: They serve a critical role in building sustainable buyer-seller relationships, increasing product and service usage, and keeping customers from defecting to rivals (Kim et al. 2001; Kivetz 2003). Conceptually, LPs share a common underlying structure (Hsee et al. 2003; Kivetz and Simonson 2003; Kivetz et al. 2006). Customers have to invest a stream of efforts (e.g., purchase several flights) to earn future rewards (e.g., a free flight). Such rewards are contingent upon reaching a particular requirement level (e.g., one free flight for 15 paid flights). The immediate payoff of customer effort, however, is not the reward itself. Rather, it is a medium (e.g., LP points). Media can be accumulated and later be traded for fundamental outcomes (e.g., a free flight). Thus, analyzing consumer responses to LP points will likely yield valid insights into the nature of the medium effect in a marketing-relevant context.

Second, LPs provide a real-life opportunity for studying media as a driver of
counter-normative decision-making. Hsee et al. (2003) have noted that marketers may stimulate purchase behavior by manipulating the way media are allocated to consumer effort. Similarly, Van Osselaer et al. (2004) have argued that medium maximization could leave consumers vulnerable to quasi-deceptive marketing ploys, e.g. a deterioration of an LP’s funding rate (see also Kivetz and Simonson 2003). Sellers may raise profits, i.e. boost sales and/or cut costs, by being more generous on the medium side (i.e., offering more medium per unit effort), while simultaneously being more tight-fisted on the reward side (i.e., providing less reward per unit medium). This implies that companies may harness the medium effect to entice consumers with marketing offers that reduce their economic welfare—yet without provoking a consumer backlash. Thus, assessing whether consumers prefer more medium (e.g., LP points) in the face of adverse changes in fundamental outcomes (e.g., an LP’s funding rate) makes for a particularly strong test of whether media are valuable, rewarding, and enjoyable. For example, if consumers were to ascribe greater value to an LP with high effort-to-medium payoff but an unfavorable funding rate than to an LP with low effort-to-medium payoff but a favorable funding rate, one would have to conclude that media are not inherently worthless. Overall, the present paper seeks to determine whether medium maximization may be rational from a consumer perspective.

In doing so, the extant body of research on the medium effect and LPs is extended in several ways. First, Kivetz and Simonson (2002, 2003) have argued that, rather than choosing between two or more LPs, consumers typically face the decision whether to enroll in a given LP. Thus, the multi-LP choice paradigm employed by Hsee et al. (2003), Shi et al. (2006), and Van Osselaer et al. (2004) is abandoned. A single-LP evaluation paradigm is employed instead. Second, a medium heuristic is proposed to theoretically account for consumers’ propensity to maximize media. Third, the effect of LP characteristics (i.e., media) on consumer behavior is studied covering both traditional measures (e.g., likelihood of joining LP or loyalty intentions) and novel ones (i.e., perceived value, perceived reward, and consumers’ affective responses). This multivariate approach allows for a direct test of how consumer hedonics are affected by different quantities of a medium. In addition, it enables the current research to study the interplay between these variables in a mediational framework based on appraisal theory. Fourth, the present work seeks to identify individual difference variables (e.g., reward deprivation) that moderate the medium effect. Finally, this paper probes whether media lead consumers to make suboptimal decisions in the guise of violations
of dominance (e.g., to prefer a dominated LP to a dominating LP), possibly enabling sellers to raise profits.

5.3 Conceptual framework: The medium heuristic

Previous research has identified many important factors that contribute to the success of LPs (Kivetz and Simonson 2002, 2003; Kivetz et al. 2006; Nunes and Drèze 2006; Shi et al. 2006; Van Osselaer et al. 2004). One crucial determinant of program value is a consumer’s perceived effort advantage, or disadvantage, relative to a reference level (e.g., the required effort for most other consumers). Kivetz and Simonson (2003) have demonstrated that consumers resort to an idiosyncratic fit heuristic to infer program value. When consumers perceive their own effort in complying with the requirements of an LP as lower than the effort of typical other consumers, they construe that LP as providing idiosyncratic fit—and hence a better deal for them. Yet, the structure of LPs (i.e., effort → medium → reward) suggests that perceived effort is not the only heuristic cue that consumers use in evaluating LPs. For example, consumers may also resort to the amount of medium awarded per unit effort (e.g., per purchase) as an indicator of program value because media are the immediate payoff of their effort. Thus, consumers are expected to employ a medium heuristic to judge program value: They will prefer LPs with high (average) effort-to-medium payoff to LPs with average (low) effort-to-medium payoff. The underlying rationale is described in turn.

Consumer preferences are often volatile and ill-defined. Indeed, it is a rather robust finding that consumers craft ad hoc evaluations of marketing offers when faced with the need to make a decision (see Bettman et al. 1998 for a synopsis). The difficulties that consumers have in assessing individual options and outcomes are a case in point (Bazerman et al. 1992; Hsee 1996; Nowlis and Simonson 1997). Making a singular evaluation of a marketing offer (e.g., an LP) appears to be particularly onerous when consumers lack a readily available reference point such as similar offers that they have previously encountered (e.g., other LPs) (see Kahneman et al. 1999). Under such circumstances, consumers tend to evaluate a marketing offer by seeking cues that may serve as a proxy of the ‘true value’ of that offer (Kivetz and Simonson 2003; Thaler 1985; Winer 1986).

For many consumers, evaluating a single LP is cognitively taxing for several reasons. First, the funding rate (i.e., effort-to-outcome return) is typically not directly given. Rather, it has to be calculated from two pieces of information, namely the
amount of medium awarded per unit effort (i.e., effort-to-medium payoff) and the amount of reward awarded per unit medium (i.e., medium-to-outcome return) (Hsee et al. 2003). Second, most consumers have little expertise in assessing the efforts and rewards associated with participating in an LP. This problem is compounded by the fact that there are often no established standards regarding an adequate funding rate (Kivetz and Simonson 2003). Third, even when reference points such as other LPs are available, comparisons are difficult to perform. LPs are often complex, exhibit dissimilar effort-to-medium conversion rates, and are structured differently both across and within industries (Hsee 1996; Kivetz et al. 2006; Nowlis and Simonson 1997). In sum, the decision whether to enroll in a given LP will induce high cognitive load in consumers. One effective strategy to ease one’s cognitive load is to simplify the decision-making process by using a heuristic (Kahneman et al. 1982). Thus, consumers are expected to evaluate a single LP on the basis of the most salient cues (e.g., idiosyncratic fit or effort-to-medium payoff).

Consistent with the medium effect, the main proposition of this paper is that consumers employ a medium heuristic to infer program value. That is, consumers will use effort-to-medium payoff as a heuristic cue of an LP’s attractiveness. Specifically, when a given LP yields an advantage (disadvantage) in terms of effort-to-medium payoff relative to a reference level—e.g., effort-to-medium payoff of a typical LP in the same industry—consumers will perceive the target LP as more (less) attractive. For example, when a particular LP offers 120 (30) LP points for every purchase of a service, while the typical program in the same industry yields 60 LP points for the same effort level, consumers will perceive the program that is more (less) generous on the medium side as providing medium advantage (disadvantage). They will thus conclude that the LP that yields more (less) medium per unit effort is a better (worse) deal for them. Normatively speaking, effort-to-medium payoff is irrelevant, though. To calculate an LP’s funding rate, consumers need two pieces of information, namely effort-to-medium payoff and medium-to-outcome return. Still, research on both medium maximization and illusionary goal progress provides support for the notion of a medium heuristic, i.e. the use of media as the most salient cues in assessing program value.

With respect to medium maximization, Hsee et al. (2003) have demonstrated that choices are influenced by both the presence and quantity of a medium. The authors argue that psychological myopia accounts for the tendency to focus on immediate rewards (e.g., effort-to-medium payoff) and to neglect the consequences of these re-
wards (e.g., medium-to-outcome return). That is, in the presence of media, decision-makers tend to overlook the fundamental implications of their behavior (e.g., effort-to-outcome return). Individuals are held to myopically maximize media because a medium provides an illusion of advantage. An option (e.g., an LP) that is originally not very advantageous (e.g., due to an unattractive funding rate) appears more favorable when it is endowed with large quantities of a medium (e.g., LP points): Effort brings large returns in the medium, while there is no advantage—or even a disadvantage—in terms of the outcome. Thus, the characteristics of two options, e.g. LP₁ and LP₂, conducive to a medium effect are a large difference in medium (M) and a small difference in outcome (O), i.e. \( M₂/M₁ >> O₂/O₁ \) (Hsee et al.). In the context of LPs, media also create an illusion of certainty to an uncertain outcome because media may lose value (Van Osselaer et al. 2004) and because the desirability of the outcome is ambiguous, while the amount of media is instantly recognizable (Hsee, Zhang, Yu and Xi 2003); an illusion of linearity because medium payoff increases linearly as consumers exert more effort, whereas the utility function of the rewards is concave (Hsee et al.); and an illusion of immediacy (i.e., instant gratification) because outcomes (i.e., rewards) are only delivered with a considerable lag after the first occurrence of the target behavior (i.e., making a purchase) (Hsee et al.). As a consequence, consumers will reveal a preference for more medium.

With regard to illusionary goal progress, Shi et al. (2006) have argued that consumers construe participation in LPs as a goal-directed activity. Consumers perceive their task as earning the amount of medium required to obtain a desired outcome. Here, progress along multiple levels of media—e.g., points and vouchers—serves as a metering device to track progress toward the goal of receiving a reward. In the present context, it is plausible to assume that consumers rely on effort-to-medium payoff to evaluate goal progress. Kivetz et al. (2006) have proposed a goal distance model that incorporates the goal-gradient hypothesis. The authors claim that consumers are aware of their distance to a goal (e.g., receiving a reward). As a result, their motivation to reach the goal is positively related to psychological goal proximity, i.e. perceived progress toward the goal. Thus, marketers may create illusionary goal progress by enhancing the perception of distance completed per unit effort (e.g., by raising effort-to-medium payoff), while simultaneously increasing the total distance to the outcome (e.g., the amount of medium required to obtain a reward) (see also Kivetz et al.; Nunes and Drèze 2006). Consumers will hence interpret medium advantage (disadvantage)—
e.g., 120 (30) LP points vs. 60 LP points for every purchase—as moving toward (away from) their goal of redeeming the reward. This will result in a preference for LPs that yield high effort-to-medium payoff.

In sum, consumers are expected to employ a medium heuristic in assessing an LP’s attractiveness. That is, they will form value judgments on the basis of an LP’s effort-to-medium payoff relative to that of a typical program in the same industry. When the target LP yields higher (lower) effort-to-medium payoff than the reference LP, consumers construe the target LP as providing a better (worse) deal for them (see also Kivetz and Simonson 2003). Thus, an LP that provides medium advantage (disadvantage) is perceived as generating high (low) value.

5.4 Hypothesis development
Perceived program value and perceived reward

Perceived program value. According to the medium heuristic, effort-to-medium payoff is positively related to perceived program value. Thus, medium advantage (disadvantage) will induce perceptions of higher (lower) program value in consumers.

Perceived reward. Rewards are pleasant stimuli that are administered closely subsequent to a target behavior. In LPs, the target behavior is the purchase of a product or service. The immediate consequence of such purchase behavior is a medium, e.g. LP points (Hsee et al. 2003; Van Osselaer et al. 2004). In keeping with Ryan et al. (1983), LP points are completion-contingent rewards. They depend upon completing a target task, e.g. paying the price for a ski pass. Given their temporal contiguity, consumers will interpret medium payoff as resulting from their purchases. They will therefore perceive an LP with higher (lower) effort-to-medium payoff as more (less) rewarding. Overall, the following hypotheses are proposed:

**H24**: Medium advantage (disadvantage) will enhance (diminish) consumer perceptions of program value.

**H25**: Medium advantage (disadvantage) will lead consumers to judge a given LP as more (less) rewarding.

Likelihood of joining LP and loyalty intentions

Likelihood of joining LP. Kivetz and Simonson (2003) have argued that consumers’
likelihood of joining an LP is the primary indicator of program value. H24 states that medium advantage (disadvantage) will enhance (diminish) perceived program value. Thus, effort-to-medium payoff will also be positively related to the likelihood of consumers joining a given LP.

*Loyalty intentions*. Customer retention is one of the main objectives of LPs. In this regard, the intention to be loyal is an important precursor to action loyalty, i.e. a customer’s commitment to re-buy a preferred brand despite marketing efforts apt to cause switching behavior (Oliver 1999). Copious evidence suggests that companies may improve both loyalty intentions and actual retention by creating perceived value (see, e.g., Bolton and Lemon 1999; Johnson et al. 2006; Zeithaml et al. 1996). According to H24, consumers use the amount of medium awarded per unit effort as an indicator of program value. Thus, effort-to-medium payoff is expected to be positively related to customers’ loyalty intentions. In sum, the following hypotheses are suggested:

**H26**: Medium advantage (disadvantage) will increase (decrease) the likelihood of consumers joining a given LP.

**H27**: Medium advantage (disadvantage) will lead to higher (lower) loyalty intentions.

**Affective responses and mediational effects**

*Affective responses*. Carver and Scheier’s (1990) cybernetic control model suggests that affect results from a comparison of one’s rate of progress (e.g., 120 or 30 LP points for every purchase of a service) toward a goal (e.g., redeeming a reward) with a pertinent criterion (e.g., 60 LP points for the same effort level). When perceived progress exceeds (falls short of) the criterion—e.g., in the case of medium advantage (disadvantage)—positive (negative) affect will ensue (see also Soman and Shi 2003). Appraisal theory (Lazarus 1991a, b; Roseman et al. 1990) provides additional theoretical support for the notion of media triggering affective responses. Events appraised as beneficial (harmful), or motive-consistent (motive-inconsistent), will give rise to positive (negative) emotions. These, in turn, are associated with proactive (passive) behavior, e.g. higher (lower) likelihood of joining a given LP. According to the medium heuristic, high (low) effort-to-medium payoff is consistent (inconsistent) with several consumer motives. These include, for example, the desire to make progress toward the
goal of redeeming a reward (Kivetz et al. 2006; Nunes and Drèze 2006) and to achieve an immediate and certain advantage over other consumers (Hsee et al. 2003; Kivetz and Simonson 2003; Van Osselaer et al. 2004). Thus, medium advantage (disadvantage) will induce more (less) positive affect and less (more) negative affect in consumers.

**Mediational effects.** Appraisal theory not only establishes a contingency between events and emotions as well as emotions and behavior. It also explicates the processes by which events translate into behavior (see Lazarus 1991a, b; Roseman et al. 1990). The perception of an event (e.g., medium advantage) will give rise to cognitions (e.g., higher perceived program value). Specifically, it is the cognitive appraisal of an event, rather than the event itself, that generates emotions (e.g., more positive affect). Thus, cognitions (e.g., perceived program value) will mediate the effect of events (e.g., medium advantage) on consumers’ emotional responses (e.g., more positive affect and less negative affect). Also, neither events nor cognitions are presumed to directly alter behavior. Rather, a decision-maker’s effort to cope with his or her emotional reactions (e.g., less positive affect and more negative affect) resulting from the cognitive appraisal of an event (e.g., lower perceived reward due to medium disadvantage) leads to changes in behavior (e.g., a plunge in loyalty intentions). Thus, emotional responses (i.e., positive affect and negative affect) will mediate the effect of cognitions (e.g., perceived program value) on consumer behavior (e.g., loyalty intentions). The above observations are encapsulated in the following hypotheses:

**H28:** Medium advantage (disadvantage) will induce higher (lower) levels of positive affect (H28a) and lower (higher) levels of negative affect (H28b) in consumers.

**H29:** Positive (negative) affect will be positively (negatively) related to perceived program value, perceived reward, likelihood of joining LP, and loyalty intentions.

**H30:** Perceived program value and perceived reward will mediate the effect of medium advantage and medium disadvantage on positive affect (H30a) and negative affect (H30b).
**H31**: Positive affect (H31a) and negative affect (H31b) will mediate the effect of perceived program value and perceived reward on likelihood of joining LP and loyalty intentions.

**Insensitivity to an LP’s funding rate and violations of dominance**

Research on medium maximization has found decision-makers to be negligent of effort-to-outcome return (Hsee et al. 2003). For example, more medium is capable of masking unfavorable effort-to-outcome return such that subjects work longer for a less enjoyed outcome. In LPs, effort-to-outcome return corresponds to a program’s funding rate, i.e. the value of the rewards per unit effort (e.g., per purchase). Thus, rational consumers should base their assessment of a given LP solely on its funding rate. However, in keeping with the notion of psychological myopia, consumers are expected to respond to the amount of LP points awarded per purchase. At the same time, they will overlook an LP’s funding rate—at least within a certain range.

While the use of heuristics is mostly rational, over-application can lead to counter-normative decision-making (Kahneman et al. 1982). So long as medium-to-outcome return (i.e., the value of the rewards obtained per unit medium) is constant or shifted upward, a preference for more medium will result in selection of superior options. By contrast, when medium-to-outcome return is shifted downward, the medium heuristic is no longer consistent with value maximization. Therefore, consumers may irrationally prefer an LP with high effort-to-medium payoff to an LP with low effort-to-medium payoff even though the funding rates of the two LPs are identical. Moreover, Kivetz and Simonson (2003) have demonstrated that over-relying on the idiosyncratic fit heuristic may even result in selection of inferior options (e.g., an LP with a less appealing funding rate). Under high idiosyncratic fit, the odds of consumers joining an LP with greater effort requirements for the same reward were found to increase. The medium heuristic is expected to exhibit similar properties. In the presence of media, consumers will be oblivious to a shift in medium-to-outcome return. The resulting violations of dominance may take one of two forms, i.e. (i) preferring a dominated LP to a dominating LP or (ii) being indifferent between a dominated LP and a dominating LP. Given consumers’ hypothesized preference for more medium—and the concomitant neglect of an LP’s funding rate—the following hypothesis is suggested:
**H32**: Consumers will prefer LPs with high effort-to-medium payoff but an unfavorable funding rate to LPs with low effort-to-medium payoff but a favorable funding rate.

**Moderators of the medium effect in LPs**

Hsee et al. (2003) have proposed two moderators of the medium effect, i.e. (i) the magnitude of the medium differential (i.e., $M_3/M_1$), and (ii) the degree to which individuals are influenced by a medium (i.e., individual difference variables). The focus of the present paper is on the second class of moderators. Psychological myopia is the preferred explanation of the medium effect. Thus, all factors that impinge on the strength of one’s myopic orientation toward media are potential moderators.

**Maximizing.** Schwartz et al. (2002) have argued that individuals differ in their desire to maximize outcomes. In trying to determine whether one’s outcome is the best possible outcome, maximizers try to process all available information. Yet, when constraints hamper exhaustive search between options—e.g., when making a singular evaluation of an LP—maximizers rely heavily on social comparison information to assess whether their outcome is indeed the best. In connection with consumer decisions, Schwartz et al. have demonstrated that maximizers are strongly affected by their perceived standing relative to peers. Therefore, maximizers are presumed to respond more intensely to effort-to-medium payoff than satisficers.

**Reward deprivation.** Deprivation refers to the condition of having lost, or being prevented from having, something that is essential or vital (e.g., rewards or other pleasant experiences). In the realm of consumer behavior, deprivation has been linked to the desire to increase the amount of the commodity one feels deprived of (e.g., free time; Ackerman and Gross 2003). In elaborating H25, it has been argued that media are perceived as rewards. Also, H28 states that media will confer hedonic benefits on consumers. Thus, higher levels of reward deprivation will increase consumers’ susceptibility to the medium effect.

**Expertise.** Kivetz and Simonson (2003) have posited that consumers are less likely to rely on proxy attributes (e.g., idiosynclatic fit) when they can meaningfully evaluate program value on the basis of the absolute quantities of efforts and rewards. Yet, when consumers have little expertise with LPs, it may be difficult for them to make an informed judgment about a given program’s funding rate. This is particularly true when consumers make a singular evaluation of an LP. Consumers with higher levels of ex-
pertise in assessing LPs are hence more likely to overcome their myopic focus on the most salient attributes of an LP (e.g., effort-to-medium payoff). This implies that consumers with lower levels of expertise in assessing LPs will respond more intensely to effort-to-medium payoff than their more knowledgeable peers. Overall, the following hypothesis is proposed:

**H33**: The medium effect will be more pronounced for consumers characterized by a strong (vs. weak) desire to maximize outcomes (H33a), high (vs. low) reward deprivation (H33b), and low (vs. high) expertise in assessing LPs (H33c).

### 5.5 Methodology

#### Sample

The sample consisted of $N = 1,366$ customers of a Swiss skiing area participating in an online market research study on LPs. 63.8% were male and 71.1% were between the ages of 21 and 50. Participants paid between nine and twelve visits to a skiing area throughout a typical season. Median disposable income was between CHF 4,000 and CHF 6,999 per month. Customers had agreed to be contacted by the skiing company via email for market research purposes. At the time of the survey, all of the participants were enrolled in the current LP which awarded rewards on the basis of purchases. Yet, in this LP, efforts and rewards were not linked via a medium.

#### Independent variables

*Relative medium position*. One of the two independent variables of the present research was consumers’ relative medium position (see Figure 15). To investigate the notion of a medium heuristic in both directions, this factor had three levels, namely (i) medium disadvantage (i.e., 30 LP points per visit in the present LP vs. 60 LP points per visit in a typical LP), (ii) medium equality (i.e., 60 LP points per visit in both the present LP and a typical LP), and (iii) medium advantage (i.e., 120 LP points per visit in the present LP vs. 60 LP points per visit in a typical LP).

*Quality of funding rate*. To test consumers’ preference for more medium in the face of changing fundamental outcomes, quality of funding rate was also varied across three levels, namely (i) status quo (i.e., ten visits earned one reward unit), (ii) improvement of 50% (i.e., ten visits yielded 1.5 reward units), and (iii) deterioration of 33% (i.e., ten visits merely brought ⅔ of a reward unit). Since the effort level corre-
sponding to a certain amount of medium was held constant across LPs (i.e., one visit earned a certain number of LP points), quality of funding rate was experimentally manipulated by adjusting medium-to-outcome return accordingly. For example, in LP 5 (i.e., a status quo LP), one visit earned 60 LP points. Since 600 LP points were needed to obtain the reward, ten visits yielded one reward unit. In LP 8 (i.e., a deterioration LP), one visit also earned 60 LP points. Yet, in LP 8, the amount of medium required to obtain the reward was increased to 900 LP points. Thus, ten visits yielded only $\frac{2}{3}$ of a reward unit, which implies a deterioration of 33%.

<table>
<thead>
<tr>
<th>Relative Medium Position</th>
<th>Medium Disadvantage</th>
<th>Medium Equality</th>
<th>Medium Advantage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of Funding Rate</td>
<td>30 LP points vs. 60 LP points for every visit</td>
<td>60 LP points vs. 60 LP points for every visit</td>
<td>120 LP points vs. 60 LP points for every visit</td>
</tr>
<tr>
<td>Improvement (+50%)</td>
<td>LP 1 200 LP points $\pm$ 1 reward unit</td>
<td>LP 2 400 LP points $\pm$ 1 reward unit</td>
<td>LP 3 800 LP points $\pm$ 1 reward unit</td>
</tr>
<tr>
<td>Status Quo</td>
<td>LP 4 300 LP points $\pm$ 1 reward unit</td>
<td>LP 5 600 LP points $\pm$ 1 reward unit</td>
<td>LP 6 1,200 LP points $\pm$ 1 reward unit</td>
</tr>
<tr>
<td>Deterioration (−33%)</td>
<td>LP 7 450 LP points $\pm$ 1 reward unit</td>
<td>LP 8 900 LP points $\pm$ 1 reward unit</td>
<td>LP 9 1,800 LP points $\pm$ 1 reward unit</td>
</tr>
</tbody>
</table>

Figure 15. The experimental design.

**Dependent and mediating variables**

The operationalization and reliability (i.e., coefficient alpha) of the dependent, mediating, and moderating variables is given in the Appendix. Unless otherwise detailed, 7-point Likert scales were used.

*Perceived program value.* A three-item measure of perceived value adopted from Dodds et al. (1991) was used to gauge perceived program value.

*Perceived reward.* Perceived reward was assessed employing a single-item measure that asked consumers to indicate the degree to which they perceived a given LP as
rewarding.

Affective responses. Positive (negative) affect, i.e. happiness/excitement (anger/sadness) were each measured using three items that were taken from Richins (1997).

Likelihood of joining LP. Consumers’ likelihood of joining a particular LP was assessed using a single-item measure that was also employed by Kivetz and Simonson (2003).

Loyalty intentions. Loyalty intentions were captured through two items used by Sirohi et al. (1998).

Moderating variables

Maximizing. Consumers’ desire to maximize outcomes was assessed using the original 13-item scale proposed by Schwartz et al. (2002).

Reward deprivation. Based on the notion that consumption is a potent source of self-rewarding behavior (see, e.g., Kivetz and Simonson 2002), reward deprivation was operationalized through customers’ self-reported monthly disposable income.

Expertise. Two measures of expertise in assessing LPs were derived. First, it was theorized that consumers who go skiing more often will also be more knowledgeable about the various LPs that are offered in the skiing sector. Thus, customers’ self-reported number of visits to skiing areas throughout a typical season was deemed an industry-specific measure of expertise. Second, based on the idea that exposure to various LPs is positively related to a consumer’s level of experience, age was included as a general proxy of expertise in evaluating LPs.

Procedure and experimental stimuli

Customers were contacted by the skiing company via an online newsletter asking them to participate in an online market research study on LPs. They were told that they would have the opportunity to evaluate an LP that could later be offered to them. Participants were randomly assigned to one of the nine conditions in a 3 (relative medium position: medium disadvantage vs. medium equality vs. medium advantage) × 3 (quality of funding rate: improvement vs. status quo vs. deterioration) between-subjects design (see Figure 15). In each condition, the features of a hypothetical LP were described. Customers were exposed to three pieces of information, i.e. (i) effort-to-medium payoff in the present LP (i.e., 30 vs. 60 vs. 120 LP points per visit, respec-
tively), (ii) effort-to-medium payoff in a typical LP (i.e., 60 LP points), and (iii) medium-to-outcome return in the present LP (e.g., one reward unit requires 600 LP points; see LP 5 in Figure 15). Explicitly, no information on the funding rate of a typical LP—or its medium-to-outcome return—was provided. Thus, consistent with the single-LP evaluation paradigm employed by the present paper, consumers were not only prevented from choosing between two or more LPs. In addition, any meaningful comparison between the target LP and a typical LP was impossible. The reward was a free lunch for two in one of the ski huts located in the skiing area. Customers responded to several questions aimed at gathering information on the dependent, mediating, moderating, and socio-demographic variables. At the end of the survey, customers were thanked. They also had the opportunity to participate in a lottery giving them the chance to win a ski pass.

5.6 Results

Insensitivity to an LP’s funding rate and the effect of effort-to-medium payoff

In a first step of testing H24 thru H28, a two-way MANOVA was performed. The result of Bartlett’s test of sphericity, \(\chi^2(20) = 4,367.75, p = .000\), indicated sufficient correlation among the dependent measures. Thus, MANOVA was appropriate for analyzing the present data. Descriptive statistics for the dependent, mediating, and moderating variables are provided in Table 20. The joint effects of relative medium position and quality of funding rate on consumer behavior are illustrated in Figure 16. Table 21 shows that there was no interaction between relative medium position and quality of funding rate—neither at the multivariate level nor at the univariate level. Moreover, quality of funding rate failed to yield a multivariate main effect. With the exception of a significant effect for positive affect (\(p = .033\)) and a marginally significant effect for perceived program value (\(p = .062\)), this finding was confirmed at the univariate level.

For relative medium position, a multivariate main effect was found. Thus, the vectors of consumers’ mean scores on the dependent variables were not equivalent for medium disadvantage, medium equality, and medium advantage. This result was confirmed at the univariate level, all \(ps = .000\). The main finding from the first step of the analysis is that consumers were generally insensitive to an LP’s funding rate (i.e., effort-to-outcome return). At the same time, they responded to the number of LP points awarded per purchase (i.e. effort-to-medium payoff).
Table 20. Descriptive statistics for dependent, mediating, and moderating variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean (M)</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Expertise</td>
<td>3.00</td>
<td>1.44</td>
<td>10</td>
</tr>
<tr>
<td>Industry-Specific Expertise</td>
<td>3.00</td>
<td>1.55</td>
<td>10</td>
</tr>
<tr>
<td>Reward Depreciation</td>
<td>3.36</td>
<td>1.18</td>
<td>10</td>
</tr>
<tr>
<td>Maximizing</td>
<td>4.42</td>
<td>1.88</td>
<td>10</td>
</tr>
<tr>
<td>Loyalty Incentives</td>
<td>4.57</td>
<td>1.69</td>
<td>10</td>
</tr>
<tr>
<td>Likelihood of Joining LP</td>
<td>4.11</td>
<td>1.41</td>
<td>10</td>
</tr>
<tr>
<td>Negative Affect</td>
<td>3.19</td>
<td>0.65</td>
<td>10</td>
</tr>
<tr>
<td>Positive Affect</td>
<td>3.24</td>
<td>0.66</td>
<td>10</td>
</tr>
<tr>
<td>Perceived Reward</td>
<td>3.77</td>
<td>1.24</td>
<td>10</td>
</tr>
<tr>
<td>Perceived Program Value</td>
<td>3.69</td>
<td>1.35</td>
<td>10</td>
</tr>
</tbody>
</table>

Note: Means (M), standard deviations (SD), and bivariate correlations are reported. Unless otherwise detailed, bivariate correlations are significant at the .05 level (two-tailed).† Not significant at the .05 level (two-tailed).

*Item scores were averaged to derive scale scores.

The median is given. The third category refers to customers reporting a number of disposable income and tenure visits to a skiing area between CHF 4,000 and CHF 6,999.

The third category refers to customers reporting a monthly disposable income of between CHF 4,000 and CHF 6,999.

The third category refers to customers reporting a monthly disposable income of between CHF 6,000 and CHF 6,999.

The median is given. The third category refers to customers reporting a monthly disposable income of between CHF 6,000 and CHF 6,999.

The median is given. The third category refers to customers reporting a monthly disposable income of between CHF 6,000 and CHF 6,999.

The median is given. The third category refers to customers reporting a monthly disposable income of between CHF 6,000 and CHF 6,999.
Figure 16. The joint effects of relative medium position and quality of funding rate on consumer behavior.
In a second step, two *a priori* contrasts were calculated. To test the effect of medium disadvantage (advantage), consumers’ mean scores across LP 1, LP 4, and LP 7 (LP 3, LP 6, and LP 9) need to be compared with those across LP 2, LP 5, and LP 8 (see Figure 15). Given the set of directed hypotheses concerning the effect of effort-to-medium payoff on consumer behavior, one-sided *t*-tests were performed. The results of this planned comparison analysis are reported in Table 22.

Table 21. MANOVA results for relative medium position and quality of funding rate.

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Multivariate <em>F</em></th>
<th>Univariate <em>F</em></th>
<th><em>df</em></th>
<th><em>p</em></th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative Medium Position (RMP)</td>
<td>11.78&lt;sup&gt;a&lt;/sup&gt;</td>
<td>12, 2,704</td>
<td>.000</td>
<td>.050</td>
<td></td>
</tr>
<tr>
<td>Perceived Program Value</td>
<td>45.60</td>
<td>2, 1,357</td>
<td>.000</td>
<td>.63</td>
<td></td>
</tr>
<tr>
<td>Perceived Reward</td>
<td>56.73</td>
<td>2, 1,357</td>
<td>.000</td>
<td>.77</td>
<td></td>
</tr>
<tr>
<td>Positive Affect</td>
<td>44.76</td>
<td>2, 1,357</td>
<td>.000</td>
<td>.62</td>
<td></td>
</tr>
<tr>
<td>Negative Affect</td>
<td>29.79</td>
<td>2, 1,357</td>
<td>.000</td>
<td>.42</td>
<td></td>
</tr>
<tr>
<td>Likelihood of Joining LP</td>
<td>19.16</td>
<td>2, 1,357</td>
<td>.000</td>
<td>.27</td>
<td></td>
</tr>
<tr>
<td>Loyalty Intentions</td>
<td>21.31</td>
<td>2, 1,357</td>
<td>.000</td>
<td>.30</td>
<td></td>
</tr>
<tr>
<td>Quality of Funding Rate (QFR)</td>
<td>1.17&lt;sup&gt;b&lt;/sup&gt;</td>
<td>12, 2,704</td>
<td>.299</td>
<td>.005</td>
<td></td>
</tr>
<tr>
<td>Perceived Program Value</td>
<td>2.79</td>
<td>2, 1,357</td>
<td>.062</td>
<td>.04</td>
<td></td>
</tr>
<tr>
<td>Perceived Reward</td>
<td>1.55</td>
<td>2, 1,357</td>
<td>.213</td>
<td>.02</td>
<td></td>
</tr>
<tr>
<td>Positive Affect</td>
<td>3.43</td>
<td>2, 1,357</td>
<td>.033</td>
<td>.05</td>
<td></td>
</tr>
<tr>
<td>Negative Affect</td>
<td>.37</td>
<td>2, 1,357</td>
<td>.689</td>
<td>.01</td>
<td></td>
</tr>
<tr>
<td>Likelihood of Joining LP</td>
<td>1.64</td>
<td>2, 1,357</td>
<td>.194</td>
<td>.002</td>
<td></td>
</tr>
<tr>
<td>Loyalty Intentions</td>
<td>.09</td>
<td>2, 1,357</td>
<td>.915</td>
<td>.00</td>
<td></td>
</tr>
<tr>
<td>RMP × QFR</td>
<td>.99&lt;sup&gt;c&lt;/sup&gt;</td>
<td>24, 4,718</td>
<td>.482</td>
<td>.004</td>
<td></td>
</tr>
</tbody>
</table>

Note. The RMP × QFR interaction was statistically insignificant at both the multivariate and univariate level. Therefore, no univariate results are reported.

<sup>a</sup> Based on Wilks’ lambda = .903.

<sup>b</sup> Based on Wilks’ lambda = .990.

<sup>c</sup> Based on Wilks’ lambda = .983.

---

*Perceived program value and perceived reward.* Medium disadvantage led customers to perceive a given LP as both less valuable and less rewarding. Conversely, medium advantage enhanced perceptions of both program value and reward. Thus, H24 and H25 were confirmed.

*Affective responses.* Medium disadvantage induced more negative and less positive affect in consumers. Medium advantage had the exact opposite effect, thereby corroborating H28.

*Likelihood of joining LP and loyalty intentions.* Medium disadvantage had a detrimental effect on both likelihood of joining LP and loyalty intentions. By contrast, me-
dium advantage had a favorable effect on these two measures. Thus, H26 and H27 met with empirical support.

Table 22. Planned comparison analysis for the effect of medium disadvantage and medium advantage.

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Medium Disadvantage vs. Medium Equality</th>
<th>Medium Advantage vs. Medium Equality</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Δ</td>
<td>t</td>
</tr>
<tr>
<td>Perceived Program Value</td>
<td>-.79</td>
<td>-7.79</td>
</tr>
<tr>
<td>Perceived Reward</td>
<td>-.79</td>
<td>-6.81</td>
</tr>
<tr>
<td>Positive Affect</td>
<td>-.78</td>
<td>-7.30</td>
</tr>
<tr>
<td>Negative Affect</td>
<td>.59</td>
<td>5.27</td>
</tr>
<tr>
<td>Likelihood of Joining LP</td>
<td>-.67</td>
<td>-4.47</td>
</tr>
<tr>
<td>Loyalty Intentions</td>
<td>-.42</td>
<td>-3.60</td>
</tr>
</tbody>
</table>

*Note*. The mean response for medium equality was subtracted from the mean response for medium disadvantage and medium advantage, respectively. All p-values are one-tailed.

Violations of dominance

In testing the notion of a medium-driven violation of dominance, six *a priori* contrasts that are particularly informative from a marketing perspective were calculated (see Figure 15).

Four contrasts apply to companies whose LP currently provides medium disadvantage, i.e. lower effort-to-medium payoff than a typical LP. These planned comparisons address the question whether the failure of an LP with an attractive funding rate may be due to medium disadvantage. In addition, they help assess whether a company may cut down on the funding rate as it increases effort-to-medium payoff. The first contrast is between LP 1 and LP 5, the second contrast juxtaposes LP 1 with LP 6, the third contrast compares LP 1 with LP 8, and the fourth contrast is between LP 1 and LP 9. Another two contrasts were calculated that apply to sellers whose LP currently yields medium equality, i.e. the same effort-to-medium payoff as a typical LP. These planned comparisons are also concerned with the question whether companies may turn an LP with an unattractive funding rate into a success by providing medium advantage. Similarly, they help clarify whether a company may realize a cost reduction as it awards customers with more medium for their effort. Contrast 5 is between LP 5 and LP 9, while contrast 6 compares LP 2 with LP 9. These latter two comparisons may also be viewed from the perspective of a seller whose LP originally offered medium advantage.
but an unattractive funding rate: They help clarify whether that seller should offer a more attractive funding rate to counteract a competitor’s attempt to achieve medium equality.

On the analytical side, six independent-samples t-tests (one-tailed) were performed to compare mean responses between pairs of LPs. As shown in Table 23, the contrast analysis revealed a preference for more medium in the face of adverse changes in an LP’s funding rate.

As to contrast 1, consumers preferred LP 5 to LP 1 even though LP 5 has a less favorable funding rate than LP 1 (see Figure 15). Similarly, a supplementary analysis revealed that LP 8 was consistently favored over LP 4, all ΔMs ≥ |.49|, all t(313) ≥ |2.53|, all ps ≤ .006. The results for contrast 2 parallel those for contrast 1. Consumers preferred LP 6 to LP 1. In a similar vein, further analyses showed that LP 9 outperformed LP 4, all ΔMs ≥ |.74|, all ts ≥ |2.88|, all ps ≤ .002. The findings for contrast 3 suggest that LP 8 was preferred to LP 1. Yet, for likelihood of joining LP, the effect was marginally significant (p = .090). The same pattern of results was found for contrast 4. Consumers liked LP 9 better than LP 1. Again, the effect for likelihood of joining LP achieved marginal significance (p = .081). With respect to contrast 5, consumers were generally indifferent between LP 5 and LP 9. However, they reported higher loyalty intentions in LP 9 than in LP 5 (p = .044). A supplementary analysis revealed that consumers preferred LP 6 to LP 2, all ΔMs ≥ |.18|, all ts ≥ |2.88|, all ps ≤ .023. However, for perceived value and negative affect, the effect was marginally significant (both ps ≤ .078), while it was insignificant for positive affect (p = .156). Finally, the results for contrast 6 parallel those for contrast 5. Consumers were generally indifferent between LP 2 and LP 9. Yet, LP 9 was associated with greater loyalty intentions than LP 2 (p = .011). In sum, H32 was corroborated.
Table 23. Testing for violations of dominance: Results of the planned comparison analysis.

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Contrast 1: LP 1 vs. LP 5</th>
<th></th>
<th>Contrast 2: LP 1 vs. LP 6</th>
<th></th>
<th>Contrast 3: LP 1 vs. LP 8</th>
<th></th>
<th>Contrast 4: LP 1 vs. LP 9</th>
<th></th>
<th>Contrast 5: LP 5 vs. LP 9</th>
<th></th>
<th>Contrast 6: LP 2 vs. LP 9</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>∆</td>
<td>df</td>
<td>t</td>
<td>p</td>
<td>∆</td>
<td>df</td>
<td>t</td>
<td>p</td>
<td>∆</td>
<td>df</td>
<td>t</td>
<td>p</td>
</tr>
<tr>
<td>Perceived Program Fairness</td>
<td>.71</td>
<td>288</td>
<td>3.93</td>
<td>.000</td>
<td>.91</td>
<td>291</td>
<td>4.93</td>
<td>.000</td>
<td>.55</td>
<td>288</td>
<td>3.01</td>
<td>.002</td>
</tr>
<tr>
<td>Likelihood of Joining LP</td>
<td>.82</td>
<td>288</td>
<td>3.99</td>
<td>.000</td>
<td>1.42</td>
<td>291</td>
<td>6.82</td>
<td>.000</td>
<td>.67</td>
<td>288</td>
<td>3.24</td>
<td>.001</td>
</tr>
<tr>
<td>Brand Attitude</td>
<td>.67</td>
<td>288</td>
<td>3.40</td>
<td>.001</td>
<td>.96</td>
<td>291</td>
<td>4.83</td>
<td>.000</td>
<td>.43</td>
<td>288</td>
<td>2.24</td>
<td>.013</td>
</tr>
<tr>
<td>Anticipated Satisfaction</td>
<td>−.54</td>
<td>204e</td>
<td>−2.73</td>
<td>.004</td>
<td>−.86</td>
<td>198e</td>
<td>−4.63</td>
<td>.000</td>
<td>−.51</td>
<td>213e</td>
<td>−2.59</td>
<td>.007</td>
</tr>
<tr>
<td>Loyalty Intentions</td>
<td>.52</td>
<td>211e</td>
<td>1.93</td>
<td>.028</td>
<td>1.01</td>
<td>209e</td>
<td>3.88</td>
<td>.000</td>
<td>.37</td>
<td>288</td>
<td>1.35</td>
<td>.090</td>
</tr>
<tr>
<td>Positive Word-of-Mouth</td>
<td>.38</td>
<td>288</td>
<td>1.84</td>
<td>.034</td>
<td>.74</td>
<td>214e</td>
<td>3.70</td>
<td>.000</td>
<td>.43</td>
<td>288</td>
<td>2.12</td>
<td>.018</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Contrast 4: LP 1 vs. LP 9</th>
<th></th>
<th>Contrast 5: LP 5 vs. LP 9</th>
<th></th>
<th>Contrast 6: LP 2 vs. LP 9</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>∆</td>
<td>df</td>
<td>t</td>
<td>p</td>
<td>∆</td>
<td>df</td>
</tr>
<tr>
<td>Perceived Program Fairness</td>
<td>.61</td>
<td>267</td>
<td>3.24</td>
<td>.001</td>
<td>−.10†</td>
<td>333</td>
</tr>
<tr>
<td>Likelihood of Joining LP</td>
<td>1.05</td>
<td>267</td>
<td>4.99</td>
<td>.000</td>
<td>.24</td>
<td>333</td>
</tr>
<tr>
<td>Brand Attitude</td>
<td>.72</td>
<td>267</td>
<td>3.46</td>
<td>.001</td>
<td>.05</td>
<td>333</td>
</tr>
<tr>
<td>Anticipated Satisfaction</td>
<td>−.67</td>
<td>213e</td>
<td>−3.38</td>
<td>.001</td>
<td>−.13</td>
<td>333</td>
</tr>
<tr>
<td>Loyalty Intentions</td>
<td>.39</td>
<td>222e</td>
<td>1.43</td>
<td>.081</td>
<td>−.13‡</td>
<td>333</td>
</tr>
<tr>
<td>Positive Word-of-Mouth</td>
<td>.69</td>
<td>267</td>
<td>3.24</td>
<td>.001</td>
<td>.31</td>
<td>333</td>
</tr>
</tbody>
</table>

Note. The mean response for the first LP was subtracted from the mean response for the second LP. All p-values are one-tailed.

† Equality of error variances not assumed.

‡ The effects, while insignificant, were not in the hypothesized direction.
Moderators of the medium effect
In a first step of testing H33, customers were divided into two groups based on a median split of their scores on the four moderating variables. The resulting factors were combined with relative medium position to form two-way factorial designs. In a second step, eight 2 (relative medium position: medium advantage/disadvantage vs. medium equality) × 2 (moderator: level 1 vs. level 2) MANOVAs were performed—each four comparing medium equality with medium advantage and medium disadvantage, respectively. Multivariate interactions were assessed based on Wilks’ lambda.

Maximizing. The effect of effort-to-medium payoff was not moderated by consumers’ desire to maximize outcomes. This result held at the multivariate level, both $F$s ≤ .76, both $p$s ≥ .600, and at the univariate level, all $F$s ≤ 2.99, all $p$s ≥ .084. Thus, H33a was not confirmed.

Reward deprivation. High (low) reward deprivation was operationalized by a monthly disposable income of less than CHF 4,000 (35.3%) (CHF 4,000 or more [64.7%]). In the context of medium disadvantage, no multivariate interaction was observed, $F(6, 866) = 1.00, p = .424$. This finding was confirmed at the univariate level, all $F$s ≤ 3.23, all $p$s ≥ .072. By contrast, a multivariate interaction between medium advantage and reward deprivation was found, $F(6, 996) = 3.10, p = .005$. At the univariate level, the interactions for perceived program value, positive affect, and likelihood of joining LP were significant, all $F(1, 1,001)s ≥ 3.94, all p$s ≤ .048. The interaction for loyalty intentions was marginally significant, $F(1, 1,001) = 3.72, p = .054$. As shown in Figure 17, customers reporting high levels of reward deprivation, i.e. low income, responded more intensely to medium advantage (all $\Delta M$s ≥ .46) than those reporting low levels of reward deprivation, i.e. high income, (all $\Delta M$s ≤ .18). Overall, H33b was partially corroborated.

Expertise. Low (high) general expertise in assessing LPs was operationalized by an age of 30 years or less (42.6%) (31 years or more [57.4%]). There were no multivariate interactions, both $F$s ≤ 1.76, both $p$s ≥ .105. With two exceptions, this result was confirmed at the univariate level, all $F$s ≤ 2.71, all $p$s ≥ .100. That is, in the context of medium disadvantage, the increase in negative affect was larger—albeit marginally—for older consumers ($\Delta M = .76$) than for younger ones ($\Delta M = .35$), $F(1, 870) = 3.40, p = .066$. This interaction is inconsistent with H33c, however. In the context of medium advantage, the increase in positive affect was larger—again: marginally—for younger customers ($\Delta M = .46$) than for older ones ($\Delta M = .06$), $F(1, 998) = 3.80, p = .052$. This
finding is consistent with H33c.

**Perceived Program Value**

**Positive Affect**

**Likelihood of Joining LP**

**Loyalty Intentions**

---

**Figure 17.** Reward deprivation as a moderator of the effect of medium advantage on consumer behavior.

Low (high) industry-specific expertise in assessing LPs was operationalized by twelve visits or less (50.3%) (13 visits or more [49.7%]) to a skiing area throughout a typical season. No multivariate interactions were detected, both $F_s \leq 1.47$, both $p_s \geq .185$. In the context of medium advantage, this result was confirmed at the univariate level, all $F_s \leq 1.06$, all $p_s \geq .304$. By contrast, in the context of medium disadvantage,
five out of the six univariate interactions were significant, all $F(1, 871)s \geq 3.92$, all $ps \leq .048$, while the interaction for perceived reward achieved marginal significance, $F(1, 871) = 3.59, p = .059$. Inconsistent with H33c, however, consumers with greater industry-specific expertise, i.e. those who go skiing more often, responded more intensely to medium disadvantage (all $\Delta M$s $\geq |.65|$) than their peers held to be less knowledgeable, i.e. those who go skiing less often, (all $\Delta M$s $\leq |.57|$). Given the contradictory evidence, H33c was not corroborated.

Mediational effects
In testing H29, H30, and H31, two SEMs were estimated. In SEM-8 (see Figure 18), consumer behavior (i.e., likelihood of joining LP and loyalty intentions) was regressed on two dummy variables representing medium advantage and medium disadvantage, respectively. Perceived program value, perceived reward, positive affect, and negative affect served as mediators. In SEM-9 (see Figure 19), the above variables were related to each other in accordance with appraisal theory. The rationale for estimating two SEMs is the following: SEM-8 was run to understand the generative mechanisms (e.g., changes in perceived program value or consumer affect) through which effort-to-medium payoff exerts its causal influence on consumer behavior (see Baron and Kenny 1986). SEM-9 was estimated to test appraisal theory in the context of medium maximization. It should be noted that SEM-9 is unfit to provide valid insights into the generative mechanisms. The reason is the following: The direct effects of effort-to-medium payoff on positive affect and negative affect will likely be attenuated by the inclusion of the cognitive mediators. Analogously, the direct effects of consumers’ cognitive responses on consumer behavior will likely be attenuated by the inclusion of the affective mediators. However, in a mediation analysis examining the above generative mechanisms, these direct effects represent indirect effects, i.e. the associations between independent variables and mediators as well as mediators and dependent variables, respectively (see Figure 18). Since mediation is not to be expected when one of these associations (i.e., one of the indirect effects) is weak, SEM-8 was first estimated to address this shortcoming of SEM-9.

SEM-8. SEM-8, $\chi^2(65) = 192.13$ ($p = .000$), RMSEA = .038, CFI = .991, met Hu and Bentler’s (1999) joint criteria for global fit. To investigate the mediating role of the four cognitive and affective constructs, Sobel tests were performed (Baron and Kenny 1986; Sobel 1982). Based on H24 thru H29 as well as the assumption that per-
ceived program value and perceived reward will be positively, rather than negatively, related to likelihood of joining LP and loyalty intentions, one-tailed tests were performed on the structural equation coefficients. Given this set of directed hypotheses, one-sided z-tests were conducted to test for mediation with greater statistical power. Inspection of the unstandardized structural equation coefficients in Figure 18 revealed that one-sided tests were appropriate. The results of the mediation analysis for SEM-8 are reported in Table 24.

![Figure 18](image-url)

**Figure 18.** Perceived program value, perceived reward, positive affect, and negative affect as mediators of the effect of effort-to-medium payoff on consumer behavior (SEM-8).

Perceived program value, perceived reward, positive affect, and negative affect were found to mediate the effect of both medium advantage and medium disadvantage
on likelihood of joining LP and loyalty intentions. Yet, for perceived program value, the mediated effect of medium advantage on loyalty intentions merely achieved marginal significance \((p = .093)\). The generative mechanisms may be defined more closely by assessing whether mediation was complete or incomplete. In doing so, the statistical significance of the four direct effects of effort-to-medium payoff on consumer behavior was examined. When the four mediating constructs are controlled for, full mediation would be indicated by non-significant direct effects of medium advantage and medium disadvantage on likelihood of joining LP and loyalty intentions. Figure 18 shows that these four direct effects were each zero, all \(\Delta \chi^2(1) \leq 2.51\), all \(ps \geq .113\). Thus, the effect of effort-to-medium payoff on consumer behavior was fully mediated by perceived program value, perceived reward, and consumers’ affective responses. This implies that media influence consumer behavior because they are valuable, rewarding, and enjoyable.

Table 24. The translation of effort-to-medium payoff into consumer behavior: Results of the mediation analysis for SEM-8.

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Mediator</th>
<th>Likelihood of Joining LP</th>
<th>Loyalty Intentions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium Advantage(^a)</td>
<td>Perceived Program Value</td>
<td>1.68*</td>
<td>1.33†</td>
</tr>
<tr>
<td></td>
<td>Perceived Reward</td>
<td>2.46**</td>
<td>2.79**</td>
</tr>
<tr>
<td></td>
<td>Positive Affect</td>
<td>2.02*</td>
<td>2.38**</td>
</tr>
<tr>
<td></td>
<td>Negative Affect</td>
<td>1.88*</td>
<td>1.99*</td>
</tr>
<tr>
<td>Medium Disadvantage(^a)</td>
<td>Perceived Program Value</td>
<td>−5.65***</td>
<td>−2.02*</td>
</tr>
<tr>
<td></td>
<td>Perceived Reward</td>
<td>−2.72**</td>
<td>−3.19***</td>
</tr>
<tr>
<td></td>
<td>Positive Affect</td>
<td>−3.12**</td>
<td>−5.43***</td>
</tr>
<tr>
<td></td>
<td>Negative Affect</td>
<td>−2.82**</td>
<td>−3.23***</td>
</tr>
</tbody>
</table>

\(^a\) Technically speaking, relative medium position is the independent variable. To facilitate interpretation, it is here referred to in terms of the dummy variables that represent medium advantage and medium disadvantage, respectively.

\(^†\) Marginally significant, \(p = .093\), one-tailed.

\(^**\) \(p < .001\), \(^*\) \(p < .01\), \(^*\) \(p < .05\), one-tailed.

SEM-9. SEM-9, \(\chi^2(69) = 197.61\) \((p = .000)\), RMSEA = .037, CFI = .991, also achieved good fit. Inspection of the unstandardized structural equation coefficients in Figure 19 revealed that positive (negative) affect was positively (negatively) related to perceived program value, perceived reward, likelihood of joining LP, and loyalty intentions. Thus, H29 was corroborated.
To assess whether consumers’ cognitive appraisal of effort-to-medium payoff generates emotions—and whether changes in behavior reflect the effort to cope with these emotions—a second mediation analysis was performed. Based on the above line of reasoning (see SEM-8), one-sided z-tests were performed. The results of the mediation analysis are given in Table 25. Both perceived program value and perceived reward carried the effect of medium advantage and medium disadvantage to positive affect and negative affect. Mediation was complete, all $\Delta \chi^2(1) s \leq 1.13$, all $ps \geq .288$. Also, positive affect and negative affect were found to consistently mediate the effect of both perceived program value and perceived reward on likelihood of joining LP and loyalty intentions. Here, mediation was incomplete, all $\Delta \chi^2(1) s \geq 13.75$, all $ps \leq .001$—except for the effect of perceived program value on loyalty intentions, $\Delta \chi^2(1) = 3.73$, $p = .053$. Overall, both H30 and H31 were confirmed.

---

**Figure 19.** A cognitive-affective model of the effect of effort-to-medium payoff on consumer behavior based on appraisal theory (SEM-9).
Table 25. Testing appraisal theory: Results of the mediation analysis for SEM-9.

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Mediator</th>
<th>Dependent Variable</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Positive Affect</td>
<td>Negative Affect</td>
<td>Likelihood of</td>
</tr>
<tr>
<td>Medium Advantage(^a)</td>
<td>Perceived Program Value</td>
<td>1.73*</td>
<td>-1.72*</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Perceived Reward</td>
<td>3.60***</td>
<td>-3.02**</td>
<td>—</td>
</tr>
<tr>
<td>Medium Disadvantage(^a)</td>
<td>Perceived Program Value</td>
<td>-7.34***</td>
<td>6.80***</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Perceived Reward</td>
<td>-4.60***</td>
<td>3.55***</td>
<td>—</td>
</tr>
<tr>
<td>Perceived Program Value</td>
<td>Positive Affect</td>
<td>—</td>
<td>—</td>
<td>3.39***</td>
</tr>
<tr>
<td></td>
<td>Negative Affect</td>
<td>—</td>
<td>—</td>
<td>3.05**</td>
</tr>
<tr>
<td>Perceived Reward</td>
<td>Positive Affect</td>
<td>—</td>
<td>—</td>
<td>3.01**</td>
</tr>
<tr>
<td></td>
<td>Negative Affect</td>
<td>—</td>
<td>—</td>
<td>2.50**</td>
</tr>
</tbody>
</table>

Note: Numbers denote Sobel test-statistics, i.e., z-values.

\(^a\) Technically speaking, relative medium position is the independent variable. To facilitate interpretation, it is here referred to in terms of the dummy variables that represent medium advantage and medium disadvantage, respectively.

\(*** p < .001, ** p < .01, * p < .05\), one-tailed.

A supplementary analysis revealed that consumers’ cognitive and affective responses to effort-to-medium payoff were non-redundant. The two affective constructs jointly achieved incremental validity beyond perceived program value and perceived reward, \(\Delta \chi^2(4) = 122.26, p = .000\). While the improvement in \(R^2\) was less than one percentage point for likelihood of joining LP, it was four percentage points for loyalty intentions. Moreover, positive affect and negative affect were found to enhance the prediction of consumer behavior independently and to be incrementally valid beyond each other, all \(\Delta \chi^2(2)s \geq 23.92\), all \(ps = .000\).

5.7 Discussion and conclusions

Findings
The goal of this paper was to study whether the myopic pursuit of a medium (e.g., LP points) may be rational from a consumer perspective. Results of a field experiment in the context of LPs reveal a pervasive influence of LP points on consumer decision-making, suggesting that medium maximization may be less irrational for consumers
than previously hypothesized.

Consistent with the idea of a medium heuristic, consumers use the amount of LP points awarded per purchase (i.e., irrelevant information) as a cue of program appeal. Higher (lower) effort-to-medium payoff enhances (diminishes) perceptions of program value and reward. Also, receiving above-average (below-average) effort-to-medium payoff provides consumers with a pleasant (unpleasant) affective experience. Similarly, medium advantage (disadvantage) increases (decreases) the likelihood of joining a given LP and has a favorable (detrimental) effect on loyalty intentions. At the same time, consumers are negligent of an LP’s funding rate (i.e., relevant information). As a consequence, consumers prefer LPs with high effort-to-medium payoff but an unfavorable funding rate to LPs with low effort-to-medium payoff but a favorable funding rate. The preference for above-average effort-to-medium payoff is particularly pronounced among low-income consumers. Moreover, LP points exert their causal influence on consumer behavior through changes in perceived program value, perceived reward, and both positive and negative affective responses. Consistent with appraisal theory, consumers’ cognitive appraisal of medium-related information (e.g., perceived reward) translates the effect of effort-to-medium payoff into their affective responses. Similarly, these affective responses mediate the effect of consumers’ cognitive appraisal of effort-to-medium payoff on their behavioral responses (e.g., loyalty intentions). These findings, suggesting that media are valuable, rewarding, and enjoyable, have several implications.

**Theoretical and practical implications**

**Theoretical implications.** The present results are consistent with previous research demonstrating that irrelevant attributes have a pervasive influence on consumer behavior (see Van Osselaer et al. 2004 for additional cites). A medium is normatively irrelevant. Yet, media seem to be powerful incentives—not only in educational settings (e.g., tokens) but also in a consumption-related context (e.g., LP points). As shown by Hsee et al. (2003), Shi et al. (2006), Van Osselaer et al., and the present research, media shape economic decision-making (e.g., the decision whether to enroll, and remain, in a particular LP), possibly shifting fundamental outcomes (e.g., market share). The finding that consumers favor LPs with high effort-to-medium payoff but an unfavorable funding rate over LPs with low effort-to-medium payoff but a favorable funding rate provides strong evidence of the importance of media. It is in line with the idea that
a medium is more than a tie-breaker between equally attractive options (Van Osselaer et al.; Hsee et al.).

Yet, unlike previous studies, the present paper provides direct evidence to support the hypothesis that media are associated with value, a sense of accomplishment, and enjoyment. That is, consumers perceive LPs with high effort-to-medium payoff but an unfavorable funding rate as more valuable, rewarding, and enjoyable than LPs with low effort-to-medium payoff but a favorable funding rate. Such a medium-driven violation of dominance calls into question the distinction between media and ultimate rewards. Overall, given the present findings, the notion that media are inherently worthless is difficult to uphold.

The present paper also challenges the assumption that medium maximization will result in experientially suboptimal choices (Hsee and Hastie 2006; Hsee et al. 2003). By contrast, higher effort-to-medium payoff was found to enhance consumer well-being. Thus, medium maximization may be at odds with normative decision-making. From a consumer perspective, however, it is less irrational than previously hypothesized. Specifically, the finding that perceived program value, perceived reward, and consumers’ affective responses mediate the effect of effort-to-medium payoff on consumer behavior is in line with the conjectures of Hsee et al., Shi et al. (2006), and Van Osselaer et al. (2004): Consumers are influenced by a medium because it is valuable, rewarding, and enjoyable. It is even conceivable that medium maximization serves as an affect regulation mechanism (see Andrade 2005). Consumers may maximize media to achieve and/or preserve a state of positive affect. At the same time, consumers tend to overlook that the myopic pursuit of media can have a detrimental effect on their welfare. Thus, together with previous work, the present research may help better explain why consumers find it so hard to skip a medium. Consumers’ myopic orientation toward media seems to be jointly driven by (i) basic cognitive limitations, (ii) the salience of media relative to relevant information (e.g., an LP’s funding rate), and (iii) a desire for greater perceived resources (e.g., LP points), instant gratification, and hedonic experiences.

From this perspective, the perceived switching costs of LPs may not only be cognitive in nature, i.e. related to perceived program value or perceived reward. Switching costs also seem to have an affective component. That is, when customers consider switching from an LP with high effort-to-medium payoff but an unfavorable funding rate to an LP with low effort-to-medium payoff but a favorable funding rate, they may
anticipate their foregone hedonic benefits—and hence be loyal. Thus, a simple hedonic rule such as ‘seeking pleasure (i.e., more medium) and avoiding pain (i.e., less medium)’ may, among other factors, lead consumers to avoid switching from one LP to another. In addition, the positive effect of effort-to-medium payoff on likelihood of joining LP and loyalty intentions suggests that irrelevant attributes (e.g., LP points) may be used to build sustainable buyer-seller relationships. The finding that this effect was mediated by perceived program value reinforces the concept of perceived value (Thaler 1985; Zeithaml 1988). It highlights the idea that failure to provide perceived value will undermine customer loyalty (Bolton and Lemon 1999; Johnson et al. 2006).

In the context of LPs, (irrelevant) social comparison information appears to be closely related to perceived value. Kivetz and Simonson (2003) have shown that effort advantage, or idiosyncratic fit (i.e., exerting less effort for the same reward than other consumers), is a crucial driver of program value. The present paper suggests that the same is true for medium advantage, i.e. receiving more medium per unit effort than consumers in a typical LP. Thus, the idiosyncratic fit heuristic and the medium heuristic may be two variants on a common, unifying relative advantage heuristic. This implies that perceived relative advantage in all three domains of an LP—i.e., effort, medium, and reward—will (irrationally) enhance program attractiveness.

The moderator analysis has revealed that maximizers and satisficers as well as younger and older customers are equally affected by effort-to-medium payoff. This finding suggests a pervasive influence of media on consumers’ cognitive, affective, and behavioral responses irrespective of their desire to maximize outcomes and their general expertise. By contrast, low-income consumers respond more intensely to medium advantage than their high-income peers. This finding is consistent with a deprivation-based account of psychological myopia. It also suggests that media are perceived as currencies (Hsee et al. 2003) and that abundance of LP points may create an illusion of wealth. In addition, frequent customers are more strongly affected by medium disadvantage than their less frequently visiting peers. This finding, however, is consistent with an involvement-based account of psychological myopia rather than an explanation that centers on industry-specific expertise in assessing LPs.

The present results add to the growing body of literature suggesting that emotions are an important determinant of consumer behavior (see Bagozzi et al. 1999). Specifically, they reveal that both negative affect (e.g., anger and sadness; see also Kivetz and Simonson 2002 for the effect of guilt) and positive affect (e.g., happiness and excite-
ment) are involved in shaping consumers’ behavioral responses to LPs. Moreover, the results of the mediation analysis are in line with appraisal theory (Lazarus 1991a, b). Consistent with the notion of cognitive appraisal, consumers’ affective responses to LP points arise from their cognitive evaluation (e.g., perceived reward) of effort-to-medium payoff. Similarly, consistent with the idea of coping, these affective responses translate the effect of consumers’ cognitive appraisal of effort-to-medium payoff into their behavioral responses (e.g., loyalty intentions). In addition, the finding that irrelevant attributes (i.e., LP points) are capable of triggering affective responses highlights the importance of cognitive appraisal in the elicitation of emotions. In a similar vein, the present paper suggests that consumers respond emotionally to irrelevant, yet highly salient, price information (i.e., the price of LP points denominated in consumer effort) even though relevant, yet much less salient, price information (i.e., the price of rewards denominated in consumer effort) provides rational consumers with a sound basis for optimal decision-making.

**Practical implications.** From a company perspective, the present results suggest that effort-to-medium payoff is an important, yet overlooked, factor contributing to program success. Consumers care about how many LP points they receive for their effort generally—not just on a given purchase occasion (see Van Osselaer et al. 2004). At the same time, consumers are much less concerned with an LP’s funding rate. Thus, media may be leveraged to raise profits. Adjusting an LP’s effort-to-medium payoff is virtually costless. Yet, it might boost sales. Similarly, cutting down on the funding rate will help save costs—without necessarily jeopardizing turnover. The results for the six contrasts in Table 23 are in line with this conclusion. They reveal that medium disadvantage may be one reason why LPs with an attractive funding rate fail in the marketplace (see Kivetz and Simonson 2002). Also, the present findings imply that offering a more attractive funding rate to counteract a competitor’s attempt to achieve medium equality is ineffective. From this perspective, many real-world LPs might be overgenerous on the reward side, i.e. too costly.

To harness the medium effect, companies need to focus consumers’ attention on the medium. That is, they have to devise LPs that increase the odds of consumers relying on effort-to-medium payoff in judging program value. To prevent a direct comparison of funding rates, marketers might set up new LPs that are dissimilar to existing ones. Such LPs would have to be alignable with respect to effort-to-medium payoff and non-alignable in other respects. Sellers may also create complex multi-medium
LPs (see Shi et al. 2006) that induce high cognitive load, thereby increasing consumers’ myopic focus on media. Once programs are crafted that direct consumers’ attention toward the medium, marketers could use comparative advertising to encourage a direct comparison between effort-to-medium payoffs of competing LPs. Sellers have several options to induce perceptions of medium advantage. These include generally providing above-average effort-to-medium payoff, tying effort-to-medium payoff to customer loyalty, or inflating average effort-to-medium payoff over time, for example.

Companies might also use media to buffer the repercussions of negative performance. With media being perceived as enjoyable rewards imbued with a value of their own, LP points could be used to compensate consumers for service failure (e.g., an overbooked flight). Also, when restructuring or streamlining an LP’s portfolio of rewards, sellers may provide an extra allowance of medium to avoid a customer backlash. In a similar vein, providing medium advantage may give sellers the opportunity to disguise a cost-saving deterioration of an LP’s funding rate.

From a consumer perspective, the present findings imply that buyers—especially those with lower incomes—should be educated: Their penchant for more medium may not be in their best long-term interest. The need to increase awareness is highlighted by the possibility that LP points influence consumer behavior through an unconscious process (Van Osselaer et al. 2004). It is only when consumers are cognizant about their susceptibility to media that they can effectively trade off their desire to increase welfare with their longing for instant gratification.

**Limitations and avenues for future research**

In studying consumers’ singular evaluation of an LP, the present paper abandoned the multi-LP choice paradigm employed by previous research (e.g., Hsee et al. 2003; Van Osselaer et al. 2004). It is unclear whether similar results will be obtained in the rare case when consumers have to choose between LPs with different effort-to-medium payoffs and varying funding rates. Also, the present research was set in the skiing sector, studying consumers’ evaluations and behavioral intentions. A rather simplistic LP was used. Future research should investigate whether the present findings generalize to other industries (e.g., airlines) and experimental stimuli (e.g., more complex LPs) as well as actual behavior (e.g., satisfaction, retention, or sales).

Investigating in greater detail why—and how—media shape consumer behavior represents another worthwhile research endeavor. Media may not only be valuable,
rewarding, and enjoyable. They could also trigger a brand positivity effect: Consumers may develop a more favorable attitude toward companies whose LP provides high effort-to-medium payoff, for example. In a similar vein, more research is needed to understand which factors moderate consumers’ susceptibility to the medium effect. With respect to individual difference variables, the moderating effect of reward deprivation should be replicated. In addition, future research might analyze the moderating properties of consumers’ involvement or tolerance for delay of gratification. As to medium characteristics, it will be fruitful to learn whether the semantics of media (e.g., “points” vs. “loyalty points”) moderate their hedonic appeal to consumers.

Future research may also investigate how marketing action can be used to amplify the medium effect. For example, companies may further increase the appeal of high effort-to-medium payoff by making it contingent upon reaching a certain requirement level: When customers start with average effort-to-medium payoff and become eligible for high effort-to-medium payoff only after a predetermined number of purchases, they might view higher effort-to-medium payoff as even more advantageous, or exclusive. In addition, the medium effect may interact with multi-medium LPs (Shi et al. 2006). Here, it will be interesting to learn whether the creation of medium advantage in earlier or later stages of such programs is more effective.

Finally, boundary conditions of the medium effect in LPs should be identified. In industries with established standards concerning an adequate funding rate (e.g., airlines), consumers may be less susceptible to the medium effect. Also, astronomically large medium advantage (i.e., medium inflation) may create reactance (see Kivetz 2005). In a similar vein, media (i.e., tangible extrinsic rewards) may undermine consumers’ preference for, or intrinsic motivation to buy, a specific brand (see, e.g., Deci et al. 1999). Studying whether the medium effect wears off over time represents another worthwhile research endeavor: Consumers may habituate and/or simply lose their interest in media. All such research will not only advance scholarly understanding of why media do matter to consumers. It will also help build buyer-seller relationships that are both—rewarding for consumers and profitable for companies.

5.8 References


Appendix: Dependent, mediating, and moderating variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient Alpha</th>
<th># of Items</th>
<th>Measure(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Program Value</td>
<td>.92</td>
<td>3</td>
<td>The value of this loyalty program is: “very low” vs. “very high”. Participation in the present loyalty program represents: “a very bad deal” vs. “a very good deal”. This loyalty program is valuable: “strongly disagree” vs. “strongly agree”. 7-point scales were used. Adapted from Dodds et al. (1991).</td>
</tr>
<tr>
<td>Perceived Reward</td>
<td>—</td>
<td>1</td>
<td>The present loyalty program is: “not very rewarding” vs. “strongly rewarding”. A 7-point scale was used.</td>
</tr>
<tr>
<td>Positive Affect</td>
<td>.94</td>
<td>3</td>
<td>When I imagine participating in this loyalty program, I feel: happy; pleased; excited. All 7-point scales anchored at “not at all” and “very much”. Adapted from Richins (1997).</td>
</tr>
<tr>
<td>Negative Affect</td>
<td>.85</td>
<td>3</td>
<td>When I imagine participating in this loyalty program, I feel: angry; worried; sad. For scale properties and references, see Positive Affect.</td>
</tr>
<tr>
<td>Likelihood of Joining LP</td>
<td>—</td>
<td>1</td>
<td>I would like to participate in this loyalty program. A 7-point scale anchored at “strongly disagree” and “strongly agree” was used. Adapted from Kivetz and Simonson (2003).</td>
</tr>
<tr>
<td>Loyalty Intentions</td>
<td>.77</td>
<td>2</td>
<td>Given the present loyalty program, the likelihood that I will continue to go skiing in (brand) is: Given the present loyalty program, the likelihood that I will spread positive word-of-mouth about (brand) is. Both 7-point scales anchored at “very low” and “very high”. Adapted from Sirohi et al. (1998).</td>
</tr>
<tr>
<td>Maximizing</td>
<td>.71</td>
<td>13</td>
<td>No matter how satisfied I am with my job, it’s only right for me to be on the lookout for better opportunities. No matter what I do, I have the highest standards for myself. I never settle for the second best. Whenever I’m faced with a choice, I try to imagine what all the other possibilities are, even ones that aren’t present at the moment. These are five sample items of the original 13-item scale used in the present study. All 7-point scales anchored at “strongly disagree” and “strongly agree”. Adapted from Schwartz et al. (2002).</td>
</tr>
<tr>
<td>Reward Deprivation (= Monthly Disposable Income)</td>
<td>—</td>
<td>1</td>
<td>Monthly disposable income: “less than CHF 2,000”; “CHF 2,000 thru CHF 3,999”; “CHF 4,000 thru CHF 6,999”; “CHF 7,000 thru CHF 9,999”; “CHF 10,000 or more”; “I do not wish to report”.</td>
</tr>
<tr>
<td>General Expertise (= Age)</td>
<td>—</td>
<td>1</td>
<td>Age: “20 or younger”; “21 thru 30”; “31 thru 40”; “41 thru 50”; “51 thru 60”; “61 or older”.</td>
</tr>
<tr>
<td>Industry-Specific Expertise (= Number of Visits throughout a Season)</td>
<td>—</td>
<td>1</td>
<td>Number of visits to skiing areas throughout a typical season: “0”; “1 thru 2”; “3 thru 4”; “5 thru 8”; “9 thru 12”; “13 thru 24”; “25 or more”.</td>
</tr>
</tbody>
</table>
6 General discussion

6.1 Findings

Taking the cognitive hegemony in the field of behavioral pricing as a point of departure, the research agenda for the present doctoral dissertation was to study the phenomenon of price affect, i.e. consumers’ emotional responses to price information. In an effort to answer the seven research questions raised in section 1.2, four essays have been presented. The following findings have been obtained.

Paper #1. The goal of paper #1 was (i) to provide a conceptual framework of price affect based on appraisal theory, (ii) to derive a psychometric measure of price affect (i.e., the PRIAS), (iii) to study the mechanics of price affect in response to a price increase (i.e., normatively relevant price information), (iv) to determine the relevance of price affect by examining its predictive validity and mediating properties in conjunction with price cognitions, and (v) to analyze whether the interplay between price information, price cognitions, price affect, and consumer behavior is in line with appraisal theory. A field experiment involving $N = 1,533$ consumers has yielded the following results. A price increase induces higher levels of negative price affect and lower levels of positive price affect in consumers. Negative price affect is related to passive consumer behavior (e.g., lower purchase intent), whereas positive price affect is associated with proactive consumer behavior (e.g., higher willingness to spread positive word-of-mouth). Also, both price cognitions and price affect mediate the effect of a price increase on consumer behavior. Consistent with appraisal theory, a price increase exerts its causal influence on price affect through changes in price cognitions. Similarly, price affect mediates the effect of price cognitions on consumer behavior. In addition, price affect improves the prediction of consumer behavior beyond price cognitions. In doing so, both negative price affect and positive price affect have incremental validity over and above price cognitions individually and beyond each other. Finally, the importance of price affect in predicting consumer behavior decreases as the absolute price level increases.

Paper #2. The objective of paper #2 was to study consumer preferences for gestalt characteristics of MDPs (i.e., normatively irrelevant price information). Results of a field experiment show that consumers respond differently to MDPs with the same present value depending on how monthly installments are patterned. Consumers favor decreasing (constant) monthly installments over constant (increasing) ones. Yet, perceptions of fairness and value are asymmetrically affected by different MDP profiles:
Compared with a series of constant monthly installments, perceived fairness is diminished by an ascending MDP profile, whereas perceived value is enhanced by a descending MDP profile. The reverse is not true. Consumers with an anti-debt as opposed to a pro-debt attitude ascribe even greater value to a descending MDP profile than to a flat one. Also, the ascending (descending) MDP profile exerts its causal influence on purchase intent and positive word-of-mouth through both positive and negative affective responses as well as perceptions of unfairness (value). In addition, the interplay between events (i.e., different MDP profiles), cognitions (i.e., perceptions of fairness and value), emotions (i.e., positive affect and negative affect), and behavior (i.e., purchase intent and positive word-of-mouth) is in line with appraisal theory. Finally, positive affect and negative affect improve the prediction of consumer behavior beyond perceived fairness and perceived value. In doing so, positive affect and negative affect have incremental validity over and above perceptions of value and fairness independently and beyond each other.

*Paper #3.* The objective of paper #3 was to develop a deeper understanding of how media (e.g., LP points) shape consumer preferences toward LPs. The results of a field experiment involving real customers are in line with the main proposition of this paper: When faced with the need to make a singular evaluation of an LP, consumers employ a medium heuristic to infer program appeal. Using the amount of LP points awarded per purchase as a heuristic cue of program value, consumers respond to effort-to-medium payoff (i.e., normatively irrelevant price information). Specifically, medium advantage (disadvantage) enhances (diminishes) perceptions of program fairness and increases (decreases) the likelihood of joining a given LP. In addition, medium advantage (disadvantage) generally results in higher (lower) levels of attitudinal loyalty, e.g. higher (lower) anticipated satisfaction, intentions to be loyal, or willingness to spread positive word-of-mouth about a given LP. At the same time, consumers are negligent of an LP’s funding rate (i.e., normatively relevant price information). As a consequence, consumers prefer LPs with high effort-to-medium payoff but an unfavorable funding rate to LPs with low effort-to-medium payoff but a favorable funding rate. This is consistent with the notion that over-application of the medium heuristic will result in violations of dominance. Moreover, the moderator analysis has revealed that the preference for above-average effort-to-medium payoff is particularly pronounced among low-income consumers, i.e. those held to be more deprived of consumption-related rewards. Finally, the mediation analysis has demonstrated that effort-
to-medium payoff exerts its causal influence on likelihood of joining LP and attitudinal loyalty through changes in perceived program fairness. These findings suggest that consumers are highly susceptible to the medium effect when dealing with LPs.

*Paper #4.* The goal of paper #4 was to study whether the myopic pursuit of a medium (e.g., LP points) may be rational from a consumer perspective. Results of a field experiment in the context of LPs reveal a pervasive influence of LP points on consumer decision-making, suggesting that medium maximization may be less irrational for consumers than previously hypothesized. Consistent with the idea of a medium heuristic, consumers use the amount of LP points awarded per purchase (i.e., normatively irrelevant price information) as a cue of program appeal. Higher (lower) effort-to-medium payoff enhances (diminishes) perceptions of program value and reward. Also, receiving above-average (below-average) effort-to-medium payoff provides consumers with a pleasant (unpleasant) affective experience. Similarly, medium advantage (disadvantage) increases (decreases) the likelihood of joining a given LP and has a favorable (detrimental) effect on loyalty intentions. At the same time, consumers are negligent of an LP’s funding rate (i.e., normatively relevant price information). As a consequence, consumers perceive LPs with high effort-to-medium payoff but an unfavorable funding rate as more valuable, rewarding, and enjoyable than LPs with low effort-to-medium payoff but a favorable funding rate. The preference for above-average effort-to-medium payoff is particularly pronounced among low-income consumers. Moreover, LP points exert their causal influence on consumer behavior through changes in perceived program value, perceived reward, and both positive and negative affective responses. Consistent with appraisal theory, consumers’ cognitive appraisal of medium-related information (e.g., perceived reward) translates the effect of effort-to-medium payoff into their affective responses. Similarly, these affective responses mediate the effect of consumers’ cognitive appraisal of effort-to-medium payoff on their behavioral responses (e.g., loyalty intentions).

The results across the above four papers suggest that consumers process price information both cognitively and affectively. These findings, corroborating the hypothesized construct of price affect, have several implications.

### 6.2 Implications

This section will discuss the implications of the present doctoral dissertation with regard to the seven research questions raised in section 1.2.
What are the theoretical underpinnings of price affect?

The results across three papers, i.e. #1, #2, and #4, suggest that appraisal theory represents a suitable theoretical framework for studying the phenomenon of price affect. One of the virtues of appraisal theory lies in the fact that it is explicit on both the antecedents and consequences of affect (e.g., consumers’ emotional responses to price information).

With respect to the antecedents of affect, appraisal theory allows behavioral pricing scholars to link affective responses with price information (i.e., a perceived shift in relative prices) that is either consistent or inconsistent with a consumer’s motives and goals. These motives and goals can be as diverse as the desire to consume more rather than less (across time) (see papers #1 and #2), to put the mental account for a financed product into the black as quickly as possible (see paper #2), or to invest less effort than other consumers in accumulating media such as LP points (see paper #4). Thus, appraisal theory not only provides a parsimonious account of the antecedents of price affect. Appraisal theory is also sufficiently versatile to be applied to a broad variety of pricing situations.

With regard to the consequences of affect, appraisal theory enables behavioral pricing researchers to link higher (lower) levels of positive price affect and lower (higher) levels of negative price affect with proactive (passive) consumer behavior. The evidence gathered throughout the above three papers suggests that the behavioral consequences of price affect can be as diverse as changes in purchase intent, willingness to spread positive word-of-mouth, the reported likelihood of joining a given LP, and intentions to remain a loyal customer.

Overall, appraisal theory lends itself ideally to integrating price affect into the extant body of behavioral pricing research. The core tenet of appraisal theory is that emotions (e.g., an increase in negative affect) arise from the cognitive appraisal (e.g., perceived price unfairness) of an event (e.g., a perceived price increase) rather than from the event itself. Thus, many of the cognitive constructs that currently dominate behavioral pricing research (e.g., perceptions of price fairness or value) may function as mediating constructs between price information and consumers’ affective responses to price information (see Figure 5). In a similar vein, appraisal theory maintains that changes in behavior (e.g., lower purchase intent) reflect a decision-maker’s effort to cope with his or her emotional reactions (e.g., an increase in negative affect) resulting from the cognitive appraisal of an event (e.g., perceived price unfairness due to a per-
ceived price increase). Thus, negative price affect and positive price affect may function as intervening variables between the traditional cognitive constructs and consumer behavior (see Figure 5). When viewed from this perspective, price affect represents the “missing link” in behavioral pricing research.

The second virtue of appraisal theory lies in the fact that it can be applied to both normatively relevant and irrelevant price information because it is built on the notion of cognitive appraisal. Again, emotions are presumed to result from the cognitive appraisal of an event (e.g., price information) rather than from the event itself. Therefore, all pieces of price information that are relevant, and salient, to consumers—irrespective of whether they are normatively relevant—can be expected to induce emotional responses in consumers.

(2) How should price affect be measured?
Four findings across papers #1, #2, and #4 suggest that price affect encompasses both positive and negative emotional responses. First, normatively relevant and irrelevant price information exerts its causal influence on consumer behavior through changes in both positive price affect and negative price affect. Second, both positive price affect and negative price affect predict consumer behavior while controlling for the effect of price cognitions. Third, positive price affect and negative price affect not only achieve incremental validity beyond price cognitions jointly but also independently. Fourth, while controlling for the effect of consumers’ cognitive responses, positive (negative) price affect achieves incremental validity beyond negative (positive) price affect.

Taken together, these findings imply that price affect is a two-dimensional rather than a one-dimensional construct (see, e.g., Mano 1991, #1; Watson and Tellegen 1985, #1). Consumers appear to simultaneously experience low (high) levels of positive (negative) affect and high (low) levels of negative (positive) affect—e.g., due to a perceived price increase (decrease). Therefore, the construct of price affect should be operationalized through both positive and negative emotional responses. In doing so, Likert-type scales (e.g., 11- to 5-point) may be employed, depending on situational and population characteristics. The PRIAS presented in paper #1 consists of two subscales capturing the positive and negative facets of consumers’ emotional responses to price information. Yet, it is certainly not a definitive assessment tool. Rather, it should serve as a point of departure. That is, any meaningful operationalization of the two dimensions of the construct of price affect will depend on the pricing context being studied.
as well as the cognitive and behavioral responses that are simultaneously examined. For example, in studying the affective consequences of price unfairness perceptions, negative emotions should be operationalized through anger and discontent rather than fear or sadness (see, e.g., the conceptual framework of Xia et al. 2004, #1). A range of suitable items to be considered for operationalization purposes can be found in Richins (1997, #2), for example.

(3) What is the interplay between price information, price affect, price cognitions, and consumer behavior?

The empirical findings of papers #1, #2, and #4 are in line with the predictions of appraisal theory. Price information exerts its causal influence on price affect through changes in price cognitions. This is consistent with the notion that emotions arise from a decision-maker’s cognitive appraisal of an event (e.g., price information). Moreover, price affect mediates the effect of price cognitions on consumer behavior. This is consistent with the notion that changes in behavior, or behavioral intentions, reflect a decision-maker’s effort to cope with his or her emotional responses resulting from the cognitive appraisal of an event (e.g., price information).

In addition, the present findings offer a novel perspective on anticipatory emotions, i.e. affect experienced at the moment of decision-making (see Loewenstein et al. 2001, #1). One of the most important tasks faced by consumers is to process price information, e.g. in deciding whether or not to accept the price offer for a given product or service. Unsurprisingly, consumers experience affect in completing this task. These affective responses lead consumers to adjust their behavior, or behavioral intentions, accordingly. Thus, the present findings suggest that anticipatory emotions arise from consumers’ cognitive appraisal of an event (e.g., price information). Similarly, changes in behavior reflect a consumer’s effort to cope with his or her anticipatory emotions resulting from the cognitive appraisal of such an event.

Especially the finding that price cognitions exert their influence on consumer behavior through changes in price affect has a methodological implication. It suggests that traditional research in behavioral pricing may suffer from specification error. That is, when the effect of price affect is ignored, the relationship between price information, price cognitions, price affect, and consumer behavior is misrepresented. In particular, when the mediating role of price affect is denied, the direct effect of price cognitions on consumer behavior is equated with the total effect of price cognitions on
consumer behavior. However, the inclusion of price affect as a mediating construct attenuates the direct effect of price cognitions on consumer behavior (see Figure 5). As a consequence, the direct effect of price cognitions on consumer behavior is overestimated.

(4) Is price affect a valid construct?
The results across three papers, i.e. #1, #2, and #4, suggest that price affect is a valid construct. First, both positive price affect and negative price affect mediate the causal effect of normatively relevant and irrelevant price information on consumer behavior. That is, both dimensions of price affect are actually involved in consumers’ processing of price information. Second, positive price affect and negative price affect achieve incremental validity beyond price cognitions—both jointly and independently. Third, controlling for the effect of consumers’ cognitive responses, positive (negative) price affect is incrementally valid over and above negative (positive) price affect. Taken together, these findings imply that price affect is not merely redundant with consumers’ cognitive responses to price information. Rather, price affect is a standalone psychological factor shaping consumer behavior. Put differently, consumers’ emotional responses to price information and many of the cognitive constructs traditionally featured in behavioral pricing research are complementary. Therefore, including both price cognitions and price affect in future research will give behavioral pricing scholars an opportunity (i) to provide a more detailed account of consumers’ processing of price information and (ii) to enhance the prediction of consumer behavior.

It is important to note that the findings culminating in the conclusion that price affect is a valid construct were quite robust. Specifically, they held across different (i) experimental manipulations (i.e., within-subjects and between-subjects designs), (ii) types of price information (i.e., normatively relevant and irrelevant), (iii) numbers of price attributes (i.e., uni-dimensional and multi-dimensional prices), (iv) operationalizations of price affect (see the methodology sections of papers #1, #2, and #4), and (v) industries (i.e., airline, automotive, and skiing). In addition, all of the data featured in the present doctoral dissertation were obtained from field experiments involving real consumers and/or customers rather than from lab studies surveying undergraduate subjects.
(5) **Do consumers respond emotionally to both normatively relevant and irrelevant price information?**

While paper #1 demonstrates that consumers respond emotionally to normatively relevant price information (i.e., a price increase), papers #2 and #4 reveal that consumers also react emotionally to normatively irrelevant price information (i.e., the gestalt characteristics of MDPs and effort-to-medium payoff, respectively). First, these findings are consistent with the extant body of behavioral pricing research which strongly suggests that consumer decision-making is biased by irrelevant price information. As a matter of fact, myriad studies have demonstrated that consumers use normatively irrelevant price cues (e.g., external references prices) in making cognitive assessments of price offers, e.g. when forming a value-for-money judgment. Second, the present results are in line with appraisal theory which states that it is the cognitive appraisal of an event, rather than the event itself, that triggers an emotional response. Again, the findings of the present doctoral dissertation are consistent with the notion that consumers respond emotionally to all pieces of price information that are relevant, and salient, to them—irrespective of whether they are relevant from a normative perspective.

(6) **Does salience matter in consumers’ emotional responses to price information?**

The results across all four papers, especially those presented in papers #3 and #4, suggest that the distinction between normatively relevant and irrelevant price information may not be a meaningful one in studying price affect. First, consumers were found to respond emotionally to both normatively relevant price information (paper #1) and normatively irrelevant price information (papers #2 and #4). Second, even when consumers were provided with normatively relevant and truly discriminating price information (i.e., effort-to-outcome return, or the price of ultimate rewards denominated in consumer effort), they responded emotionally to normatively irrelevant price information (i.e., effort-to-medium payoff, or the price of LP points denominated in consumer effort). This pattern of results was obtained in a situation in which normatively irrelevant price information was much more salient than normatively relevant price information. Therefore, consumers appear to respond emotionally to whatever piece of price information is salient and relevant to them—irrespective of whether it is normatively relevant.
It should be noted that this conclusion emerges from both paper #4, which explicitly studied consumers’ affective responses to price information, and paper #3, which examined consumer reactions held to be closely associated with such affective responses, i.e. price (un)fairness perceptions (Xia et al. 2004, #1) and satisfaction (Oliver 1999, #3). The finding that the salience of price information matters is consistent with previous research in behavioral pricing as well as appraisal theory. Specifically, appraisal theory maintains that, to produce an emotional response, an event must be appraised cognitively. To be appraised cognitively, however, an event must first be perceived. Thus, events (e.g., pieces of price information) that are not salient to a decision-maker will unlikely trigger an affective response.

(7) What are the practical implications of the finding that consumers respond emotionally to price information?
The findings of papers #1, #2, and #4 suggest that both cognition and affect are involved in consumers’ processing of price information. These findings have several practical implications.

Companies may gain by creating price information that, all else being equal, translates into more positive affect and/or less negative affect, thereby providing consumers with a more hedonic shopping, payment, and consumption experience. For example, paper #2 has revealed that multi-dimensional price profiles that provide consumers with a more pleasant affective experience are also those that result in greater purchase intent, higher willingness to spread positive word-of-mouth, and enhanced cash flow. In a similar vein, multi-dimensional price profiles that incorporate consumers’ debt aversion and penchant for improvement—i.e., those that are enjoyable to consumers—might help put a brand into their consideration set in the early stages of decision-making.

Paper #1 suggests that, in marketing communication, companies may amplify the purchase-accelerating effect of positive price affect by communicating motive-consistent price information (e.g., rebates) with an affective, rather than cognitive, focus (e.g., ‘Enjoy your rebate!’). This may increase (decrease) the salience of positive (negative) price affect, which will result in higher levels of proactive consumer behavior (e.g., higher purchase intent or greater willingness to spread positive word-of-mouth).

The finding that consumers respond emotionally to price information could also
help inform the timing of pricing decisions. In paper #1, it has been argued that affective intensity increases as a focal event (e.g., making a purchase) draws nearer. Thus, a price decrease that is communicated five minutes prior to making a purchase will induce higher (lower) levels of positive (negative) price affect than one that is communicated four weeks in advance. In line with this notion, a rebate offered in the purchase phase should have a larger impact on consumers’ purchase behavior than a rebate offered in the pre-purchase phase, for example.

In a similar vein, the results of the present doctoral dissertation may have implications for the design of the retail environment. As noted in paper #1, Bower’s (1981, #1) network theory of affect (i.e., mood-state congruency and mood-state dependency) suggests that motive-consistent, or positively valenced, price information (e.g., an advertised price promotion) is more accessible in memory when consumers are in a positive, rather than negative, affective state. Thus, cues in the retail environment that induce more positive affect in consumers may increase the effectiveness of advertised price promotions. Many discounters frequently launch price promotions. Yet, their relatively Spartan retail environments may elicit only very low levels of positive affect. Thus, discount retailers may benefit from such positively valenced affective cues.

Finally, paper #4 shows that price information that provides consumers with a more hedonic experience (e.g., paying a lower price per LP point in terms of one’s effort than other consumers) is positively related to the likelihood of joining a given LP and loyalty intentions. Thus, companies may create normatively irrelevant, yet enjoyable, price information to enhance customer retention.

6.3 Limitations and avenues for future research

Papers #2 and #4 have examined consumer reactions to both motive-inconsistent and motive-consistent price information, i.e. an ascending and a descending multidimensional price profile as well as medium disadvantage and medium advantage, respectively. By contrast, paper #1 was limited to studying consumers’ affective responses to motive-inconsistent price information, i.e. a price increase. As noted in paper #1, future research should jointly investigate consumer reactions to a price increase and decrease. In doing so, it will be interesting to learn whether consumers’ affective responses to a monetarily equivalent price increase and decrease are in accordance with prospect theory (Kahneman and Tversky 1979, #1). If consumers perceived shifts in relative prices as gains and losses, price increases and decreases might trigger
asymmetric affective responses. The results of such research could also advance scholarly understanding of whether loss aversion has an affective component (see Johnson et al. 2006, #1).

In addition, future research should investigate which pieces of price information are perceived by consumers as motive-consistent and motive-inconsistent events. Options include deviations from a reference price (Mazumdar et al. 2005, #1), various temporal formats of the pennies-a-day strategy (Gourville 1998, #1), flat rate pricing, and (missed) price promotions (Honea and Dahl 2005, #1), for example.

The goal of the present doctoral dissertation was to study the phenomenon of price affect in conjunction with price cognitions. In doing so, the focus was on three cognitive constructs, namely perceived price (un)fairness (see papers #1 and #2), value-for-money judgments (see papers #1, #2, and #4), and perceived reward (see paper #4). Yet, other price cognitions were excluded (e.g., price knowledge). Thus, more work is needed to determine whether the present findings will hold once other, or additional, cognitive constructs are considered.

Another limitation of the present work is that passive consumer behavior was conceptualized as less proactive consumer behavior (e.g., lower willingness to spread positive word-of-mouth or lower loyalty intentions). Thus, future research should examine whether positive price affect and negative price affect also predict outcomes like negative word-of-mouth or additional search behavior, both of which are detrimental to a focal brand.

As noted in paper #1, intensity is a defining feature of any emotion (Reizenzein 1994, #1). Thus, a comprehensive framework of price affect must account for both the valence and intensity of price-induced emotions. In identifying variables that moderate the intensity of price affect, future research may draw on the concept of secondary appraisal (Lazarus 1991a, b, #1). Here, coping potential is the central determinant of affective intensity. Thus, the intensity of price affect may depend on the size of a perceived change in relative prices, the target good’s substitutability, or consumers’ income. Consistent with this notion, paper #4 has revealed that the increase in positive affect due to medium advantage was larger for consumers with low income (i.e., low coping potential) than for those with high income (i.e., high coping potential). In incorporating secondary appraisals into the conceptual framework of price affect, future research might follow a discrete emotions approach (e.g., Roseman et al. 1990, #1). The present doctoral dissertation has sought to establish the relevance of positive price
affect and negative price affect. Yet, within these basic categories of affect (e.g., negative affect), discrete emotional responses can be quite diverse (e.g., fear vs. sadness vs. anger). For example, in deriving price (un)fairness judgments, consumers are known to make attributions as to who is responsible for a certain price. Such attributions could be related to the appraisal dimension of agency (i.e., circumstance- vs. other- vs. self-caused events). Thus, future research should try to demonstrate that perceived price unfairness is related to anger (i.e., an emotion caused by others, e.g. a company) rather than regret (i.e., an emotion caused by the self, e.g. the consumer).

Finally, even though the present doctoral dissertation is built on experimental data from field settings, consumers responded to hypothetical scenarios (e.g., a hypothetical price increase, hypothetical finance offers, and hypothetical LPs). Therefore, it remains unclear whether the present findings provide an accurate portrayal of consumers’ processing of price information when making real decisions with real consequences. The present work hopes to provide future research addressing these, and similar, issues with a point of departure.
Curriculum Vitae

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