

# Hedonism versus accuracy: the influence of motivation and affect on the evaluation of multiple gains and losses

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**Abstract** The perceived value of multiple gains and losses may be influenced by a perceiver's goals or affective state. In this research, insights from prospect theory were combined with the heuristic-systematic model to shed light on the information-processing strategies that underlie motivated and affect-related preference formation in the context of valuating multiple gains and losses. Specifically, findings from two experiments examine the influence of motivation and affect on preferences for segregated versus integrated gains and losses. In the first experiment—consistent with hypotheses—accuracy motivation was found to induce systematic processing for gains. The mixed results in the loss condition are explained with the influence of negative affect. Overall, the evidence supports the notion that people's value functions might be more flexible than predicted by prospect theory, depending on people's current goals. The second experiment substantiates these findings, identifying the influence of negative versus positive

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affect on the valuation of gains and losses. The results suggest that mood-management determines information processing and preferences depending on the congruence of the valence of affect (e.g. negative such as sadness) and the valence event (e.g. a positive event such as a gain). From a managerial perspective these studies add to practical knowledge on price communication, bundling, surcharges, or sequences of payments. When setting prices, salaries or other compensation schemes managers should consider whether their target group tends to be more accuracy or more feeling motivated.

**Keywords** Heuristic and systematic information processing · Valuation · Preference · Motivation · Affect · Framing

**JEL Classification** M31 · M37

## 1 Introduction

Marketing managers often face the challenge of how to communicate prices of surcharges, rebates or additional benefits. In this research we study this issue by focusing on people's preferences for integrating or segregating gains as well as losses. Valuation of multiple gains and losses helps to answer questions such as: will customers prefer an airplane ticket that costs \$200 plus \$100 taxes (segregation) to a plane ticket that costs \$300 (integration)? Will customers prefer a computer that costs \$700 plus \$250 for additional memory to a computer with additional memory at a cost of \$750? Do consumers prefer to receive \$200 and \$100 in prize money (segregation) to receiving \$300 all at once (integration)? Answers to such questions help managers to better understand the effectiveness of persuasive messages or pricing (Peine et al. 2012). These questions are also related to current issues of price bundling (Chakravarti et al. 2002; Soman and Gourville 2001), surcharges (Morwitz et al. 1998) or sequences of payments (Gourville and Soman 1998).

Recognizing that preferences are constructed and context-dependent, recent literature emphasizes the importance of connecting cognitive approaches to motivational and emotional aspects of decision-making (Rottenstreich and Shu 2004; Payne and Bettman 2004; Higgins 2006; Lee et al. 2009). Drawing on this reasoning, we argue that preferences for integration or segregation are to a large extent contingent on people's goals and feelings. Therefore, we identify motivation and affect as two important factors that determine and help to explain preferences for segregating or integrating gains and losses.

Previous research has examined the valuation of gains and losses (Linville and Fischer 1991; Thaler 1985, 1999; Thaler and Johnson 1990), but a clear understanding of preferences related to the valuation of *multiple* gains and losses is limited. Research inspired by Kahneman and Tversky's prospect theory (1979) has investigated preferences for segregated or integrated gains and losses and has found a distinct preference pattern: Preferences favored segregated over integrated gains and integrated over segregated losses (Thaler 1985). Thaler explains the

observed preferences on the basis of the value function (Kahneman and Tversky 1979), stating that segregated gains are more pleasurable while integrated losses are less painful. However, an understanding of other factors, such as motivation and affect that may impact this frequently observed preference pattern, remains lacking.

Drawing on this reasoning, we would like to extend the current understanding of preferences for integration versus segregation of gains and losses in several ways. *First*, we argue that the findings of previous research on the preference for integration or segregation of gains and losses are limited to the specific condition when a motivation to value by feelings is triggered. To close this research gap, this research seeks to understand how accuracy motivation determines these preference patterns. *Second*, although considerable research has been devoted to the impact of affect on reasoning (Wegener et al. 1995; Muramatsu and Hanoch 2005; Lee et al. 2009; Kim et al. 2010), little attention has been paid to how it shapes preferences for integration versus segregation of gains and losses. Therefore, this research aims to shed light on how positive versus negative affect influences valuation and preference patterns for integrated versus segregated gains and losses. *Third*, it is well established that different strategies of information-processing influence judgment and decision-making (e.g. Chaiken 1980; Petty and Cacioppo 1986). However, past research based on prospect theory is mostly agnostic about the processes that are employed to construct value (Hsee and Rottenstreich 2004). Additionally, research on how the strategy of information-processing influences preference patterns for integration or segregation when evaluating multiple gains and losses is lacking. Therefore, this research attempts to enhance our understanding of the interaction of underlying information processing with motivation and affect when people evaluate multiple gains or losses.

*In sum*, our research extends the current understanding of preferences for segregated or integrated gains and losses by examining the influence of motivation and affect along with their underlying information-processing strategies on the corresponding preference formation. From a practical viewpoint this research adds to managerial knowledge on price communication, bundling, surcharges, and sequences of payments (Gourville 1998). For example, for a more hedonic product, surcharges should be presented in an integrated way, presuming that the respective customers will process price information heuristically and therefore prefer integrated losses. For the utilitarian product, however, the type of price communication is not expected to influence preferences. Likewise, additional benefits (e.g. rebates) for a hedonic product should be presented in a segregated way, whereas, results of this research suggest that for a utilitarian product communication of rebates does not influence consumer choice.

The remainder of this investigation is structured as follows. The first study explores the impact of motivation while the second study analyzes the influence of affect on preferences for integration and segregation of multiple gains and losses and the corresponding information processes. Finally, we discuss the results in light of existing theory and evidence.

## 2 Impact of motives on preferences

### 2.1 Theoretical background

Drawing on the value function of the prospect theory (Kahneman and Tversky 1979), the hedonic editing rules (Thaler 1985) propose that people prefer segregated to integrated gains (e.g. winning \$100 twice vs. winning \$200 in one go) and prefer integrated to segregated losses (e.g. losing \$200 in one go vs. losing \$100 twice).<sup>1</sup> In this research, we argue that the scope of previous research is limited to specific conditions. Previous research has emphasized hedonic goals for preference formation when evaluating segregated versus integrated gains and losses (Linville and Fischer 1991; Thaler 1999). Research on information processing has established that when people are guided by feelings, they are more likely to employ heuristic information processing (Finucane et al. 2000). Therefore, we suggest that previous findings were based on the fact that the information was being processed heuristically, which was guided by the directional motivation to feel good or to avoid feeling bad (Hsee and Rottenstreich 2004). However, as extant literature demonstrates, other motives, such as accuracy motives, may also be driving valuation, thus leading to more systematic information processing strategies (Chen et al. 1996, 1999; Chaiken et al. 1989).

A large body of research has demonstrated that people's motives strongly influence the information processing strategy employed and subsequent judgments (Agrawal and Maheswaran 2005; Chen et al. 1996; Kunda 1990; Chaiken and Maheswaran 1994). Therefore, motives may also influence preference formation for segregated versus integrated gains and losses through their impact on information processing. In order to investigate the impact of motivation on people's response to segregated versus integrated gains and losses, this research focuses on two basic motivations, the non-directional accuracy motivation and the directional motivation to value by feelings. Additionally, this research is particularly interested in the information processing strategies underlying these motivated evaluations.

### 2.2 Hypotheses development

Considering *gains*, we theorize that people who are motivated to process information accurately are likely to perceive the value of, for example, a single gain of \$200 as being equal to two gains of \$100 each. *Accuracy motivation* is found to induce systematic information processing (Chen et al. 1996; e.g. Agrawal and Maheswaran 2005). Evidence demonstrating the link between information processing and valuation supports the notion that systematic information processing leads to a greater focus on the overall magnitude of gains and losses and fosters an indifference between segregation and integration due to a more linear value function (Hsee and Rottenstreich 2004; Schunk and Betsch 2005). Hence, accuracy-

<sup>1</sup> Note that these preference patterns only apply to passive preference formation. When people actively decide on how to set out negative events over time, other preference patterns apply (Thaler and Johnson 1990; Linville and Fischer 1991).

motivated people will use the actual amount gained and not other information such as the number of gains as the substantive feature when forming their preferences.

In contrast, for a person motivated to value by feelings, multiple gains are perceived as more pleasurable and are therefore preferable to integrated gains (Linville and Fischer 1991; Thaler 1985; Thaler and Johnson 1990). *Valuation by feelings* is assumed to foster preferences as predicted by prospect theory and the hedonic editing rules (Thaler 1985). This research concludes that a valuation by feelings results in a directional motivation to seek pleasure and to avoid pain (Kunda 1990). In this sense, when valuating by feelings, people will ask themselves “How do I feel about this gain or loss?” and are therefore predicted to place greater attention on the hedonic relevance of a stimulus (Hsee and Rottenstreich 2004; Kunda 1990). Accordingly, previous research confirms that segregated gains as compared to one integrated gain are perceived as more pleasurable (Linville and Fischer 1991; Thaler 1985; Thaler and Johnson 1990). This theorizing suggests that heuristic processing will elicit a preference for a segregation of gains (Thaler 1985).

Therefore we propose the following hypothesis for gains:

H1.1 A valuation by feelings (versus accuracy) will lead to a higher (lower) preference for a segregation instead of an integration of gains

When valuating losses, we suggest that accuracy-motivated people will be indifferent to the way losses are presented and will regard a segregated loss as equally undesirable as an integrated loss. In line with the argumentation for gain, we propose that accuracy motivated people will be indifferent to whether a loss is presented in a segregated or an integrated way. In contrast, judgments formed when the decision-maker is motivated to value by feelings are influenced by the way losses are presented. Because integrated losses feel less painful than segregated losses, integrated losses are preferable to segregated losses for people motivated by feelings. That is because integrated losses are perceived as less painful than segregated losses for people motivated by feelings (Linville and Fischer 1991; Thaler 1985; Thaler and Johnson 1990). Hence, we postulate the following hypothesis for losses:

H1.2 A valuation by feelings (versus accuracy) will lead to a higher (lower) preference for an integration instead of a segregation of losses

*Information processing.* A valuation by feelings is hypothesized to trigger heuristic processing, inducing a preference for segregated gains or integrated losses in line with prospect theory. Individuals using the heuristic processing mode should thus be insensitive to the scope of the events (Hsee and Rottenstreich 2004) and will subsequently be guided by the frequency of occurrence of events when deciding on their preference. Hence, the frequency of occurrence of gains or losses will serve as a heuristic cue, resulting in more thoughts about the frequency of gains or losses. In contrast, a valuation by accuracy should result in a focus on the scope of the gain or loss, resulting in fewer thoughts about the frequency of occurrence of gains or losses. Therefore, we propose that motivations guide the information processing in such a way that heuristic processing leads to greater elaboration on the frequency with which events occur:

H2.1 A valuation by feelings (versus accuracy), inducing heuristic (systematic) processing, elicits more (fewer) thoughts on the frequency of occurrence of positive or negative events

Accuracy-motivated individuals are predicted to process information systematically and to be sensitive to the scope of the events (Hsee and Rottenstreich 2004). Hence, valuation by accuracy will lead to a higher elaboration on the objective outcome of the positive or negative event, in this case, the actual dollar amount lost or won. Consequently, we propose that accuracy motivation leads to more elaboration of the scope of the event:

H2.2 A valuation by accuracy (versus feelings), inducing systematic (heuristic) processing, elicits more (fewer) thoughts on the scope of the positive or negative event

Conversely, a valuation by feelings is characterized by the use of simple heuristics and an affective way of evaluating judgment-relevant information (Chen and Chaiken 1999). People guided by feelings are assumed to be more attentive to the hedonic relevancy of an outcome and elaborate more on how an outcome under evaluation will impact their feelings (Kunda 1990). Hence, a valuation by feelings is proposed to elicit a focus on the emotional outcome and to trigger more thoughts related to feelings. Stated formally,

H2.3 A valuation by feelings (versus accuracy), inducing heuristic (systematic) processing, elicits more (fewer) thoughts related to the emotional impact of the positive or negative event

Additionally, due to loss aversion, losses are perceived as more painful than gains are perceived as pleasurable (Ariely et al. 2005; van Dijk and van Knippenberg 1996; Brenner et al. 2007). Therefore, negative events should elicit more thoughts concerning the emotional impact of the outcome than positive events. Stated formally,

H2.4 In the loss condition people produce more feeling-related thoughts than in the gain condition

These posits convey the notion that a valuation by accuracy induces systematic processing, whereas a valuation by feelings yields heuristic processing, and that the type of information processing will mediate the effect of motivation on preference. Therefore, this research posits that the type of information processing mediates the influence of motivations on preferences:

H3 The effect of a valuation by accuracy (versus feelings) is mediated by systematic (heuristic) information processing

These hypotheses are tested in Study 1.

## 2.3 Empirical study

### 2.3.1 Pretest

The pretest was designed to test the motivation manipulations used to prime the two different motivations of interest. The tasks were designed in a similar way to manipulations used by Chen et al. (1996) and Hsee and Rottenstreich (2004). Thirty university students were randomly assigned to two conditions (accuracy motivation ( $N = 14$ ) and motivation to value by feelings ( $N = 16$ )). In each condition participants received two tasks priming either accuracy motivation, or the motivation to value by feelings. Each task included about 150–175 words. The participants were given 10 min to read and respond to the tasks.

In the first task, to prime *accuracy motivation*, participants were asked to imagine being a reporter seeking facts for an environmental issue (Chen et al. 1996; Agrawal and Maheswaran 2005). In the second task, participants were asked how they would proceed to budget another year at school (Hsee and Rottenstreich 2004). Both priming scenarios for accuracy motivation emphasized objective behavior and asked participants to respond in a rational and accurate way.

The tasks priming a *valuation by feelings* asked subjects to imagine how they felt about the specific situation described in two different scenarios. Based on Hsee and Rottenstreich (2004), scenario one concerned feelings towards an environmental issue, and scenario two concerned feelings towards another year at school. Both tasks required participants to respond to the situations in an intuitive way that was guided by their feelings.

After reading the scenarios, participants were asked to write down their thoughts in response to the scenarios described. Next, participants were asked to indicate “To what extent have you been thinking about how excited or upset you are by the events described in the scenarios?” and “To what extent have you been trying to think objectively in response to the scenarios?” on an 11-point scale anchored at “not at all” (1) to (11) “a great deal”.

Participants primed for accuracy motivation indicated higher levels of objective thinking than participants primed to value by feelings ( $M_{AM} = 7.71$  vs.  $M_{VF} = 6.00$ ,  $t(28) = 2.02$ ,  $p < .05$ ). Participants primed to value by feelings indicated higher levels of thinking about feeling excited or upset than participants primed to value by accuracy ( $M_{VF} = 6.88$  vs.  $M_{AM} = 4.64$ ,  $t(28) = -2.54$ ,  $p < .05$ ). The manipulation was thus successful in priming the corresponding motivation.

### 2.3.2 Methods

*Design and participants.* 168 university students completed the study in exchange for a payment of \$5. Participants were randomly assigned to a 2 (motivation: valuation by accuracy versus valuation by feelings) by 2 (event: gain versus loss) between-subjects design.

*Procedure.* The experiment consisted of two purportedly unrelated studies. The first study manipulated information processing motivation through a priming task.

Next, participants were asked to complete the second study that exposed them to either gain or loss scenarios, and were asked to indicate their preference between different scenarios of positive or negative events. The preference task was followed by a manipulation check and a number of control measures. Following the completion of the experiment, participants were fully debriefed.

### 2.3.3 Independent variables

*Motivation.* The motivation manipulation used the scenarios examined in the pretest.

*Gain and loss scenarios.* All scenarios employed are based on scenarios used by Thaler (1985) and Linville and Fischer (1991). The actual scenarios and dollar amounts were chosen on the basis of pretests ( $N = 55$ ) and were successfully applied to investigate preferences for integration versus segregation in the context of gains and losses (Thaler 1985). Participants were presented with both a segregated and an integrated scenario of either gains or losses. All scenarios featured the same amount of dollars won or lost (\$230) and were situated in comparable situations. Cf. Appendix for detailed scenarios.

### 2.3.4 Dependent measures

*Preference.* Participants indicated their preference for either the integration or the segregation scenario on an 11-point scale, ranging from a preference for either the scenario with an integrated gain or loss (1) to a preference for the scenario with a segregated gain or loss (11).

*Cognitions.* Cognitions were collected to gain insight into cognitive processes related to preference formation. Participants were requested to list all the thoughts that occurred to them while they were considering their preference.

*Control measures.* Participants rated the believability, comprehensibility, and effectiveness of the information they were given on a seven-point scale anchored by “not believable/believable”, “difficult to understand/easy to understand”, and “ineffective/effective”. Finally, participants were asked about their demographics and were administered an open-ended suspicion probe. These variables did not impact the results and will not be discussed further.

### 2.3.5 Results

To analyze the data, a 2 (type of event: gain versus loss) by 2 (motivation: accuracy versus feelings) between-subjects ANOVA was employed.

*Motivation and preference.* A  $2 \times 2$  ANOVA on preference revealed a main effect of the type of event indicating a higher preference for the segregated frame in the gain condition as opposed to the loss condition ( $M_{GAIN} = 6.36$  vs.  $M_{LOSS} = 3.72$ ,  $F(1,164) = 30.89$ ,  $p < .001$ ). Analysis also yielded a main effect of motivation such that a valuation by feelings (vs. accuracy) led to a higher preference for the segregated frame ( $M_{VF} = 5.55$  vs.  $M_{AM} = 4.64$ ,  $F(1,164) = 4.00$ ,  $p < .05$ ). Analysis also revealed an event by motivation



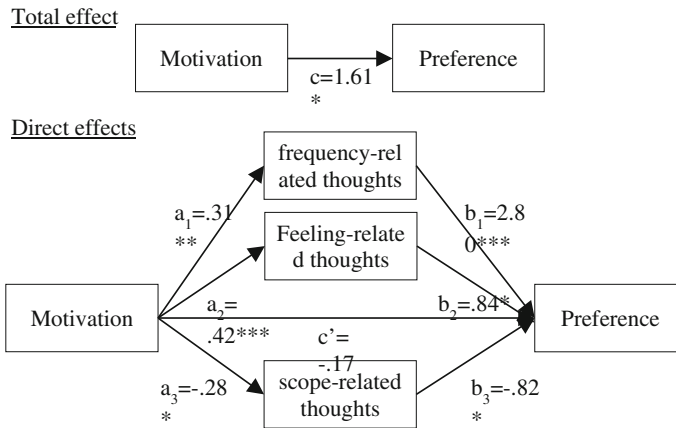
interaction ( $F(1,164) = 3.75, p < .05$ ). Specifically, within the gain condition, valuation by feelings (vs. accuracy) led to a higher preference for segregation ( $M_{VF} = 7.37$  vs.  $M_{AM} = 5.46, F(1,164) = 8.02, p < .01$ ). This finding is consistent with Hypothesis 1.1, suggesting that a valuation guided by feelings will lead to a higher preference for segregated gains than a valuation by accuracy. In contrast, for the loss condition, there was no difference between valuation under accuracy and valuation by feelings ( $M_{AM} = 3.70$  vs.  $M_{VF} = 3.73, F < 1$ ). Both valuation by accuracy and valuation by feelings led to a preference for integrated losses. Therefore, the data does not provide support for Hypothesis 1.2. Thus, the results support the hypotheses only in the gain condition.

*Cognitions. Motivation and information processing.* The hypotheses on information processing (Hypotheses 2.1–2.4) were examined using subjects' cognitive responses. The responses to the thought-listing task were classified into one of four categories: (1) thoughts related to the frequency of occurrence of gains or losses (e.g. "I prefer to win twice."); (2) thoughts related to the scope—the amount lost or won (e.g. "The money adds up to the same amount."); (3) feeling-related thoughts (e.g. "It makes me feel happier"); and (4) miscellaneous thoughts. Cognitive responses were analyzed using a  $2 \times 2$  between-subjects ANOVA on thoughts.

*Frequency-related thoughts.* Consistent with Hypothesis 2.1, an ANOVA on the thoughts related to the frequency of occurrence of either positive or negative events revealed a main effect of motivation, indicating that subjects guided by a valuation by feelings (vs. accuracy) listed more thoughts on the frequency of occurrence ( $M_{VF} = 0.88$  vs.  $M_{AM} = 0.62, F(1,164) = 7.68, p < .01$ ). Analysis also revealed a main effect of the type of event, indicating that loss (vs. gain) scenarios triggered more thoughts related to frequency of occurrence of the event ( $M_{LOSS} = 0.89$  vs.  $M_{GAINS} = 0.61, F(1,164) = 8.92, p < .01$ ). This finding is consistent with the assumption that losses induce stronger feelings and might therefore trigger a heuristic way of information processing.

*Scope-related thoughts.* The analysis of the number of thoughts related to the dollar amount that was lost or won provided support for Hypothesis 2.2. The ANOVA yielded a reliable main effect for motivation, confirming that a valuation by accuracy (vs. feeling) induced more thoughts on the actual amount of money lost or won ( $M_{AM} = 0.93$  vs.  $M_{VF} = 0.55, F(1,164) = 10.23, p < .01$ ). Indeed, accuracy-motivated participants were more sensitive to the scope of a gain or a loss. A main effect of the type of event was also observed, indicating that in the gain (vs. loss) condition, people elaborated more often on the amount of money ( $M_{GAIN} = 0.92$  vs.  $M_{LOSS} = 0.56, F(1,164) = 9.22, p < .01$ ).

*Feeling-related thoughts.* The ANOVA on the number of thoughts related to feelings yielded no significant effect of motivation ( $F < 1$ ). The simple effect comparison of the amount of feeling-related thoughts within the gain condition showed a reliable effect, confirming that people motivated by their feelings (vs. accuracy) elaborate more on the emotional outcome ( $M_{VF} = 1.10$  vs.  $M_{AM} = 0.65, F(1,16) = 5.460, p < .05$ ). A main effect of the type of event indicated a greater amount of feeling-related thoughts in the loss (vs. gain) conditions ( $M_{LOSS} = 1.25$  vs.  $M_{GAIN} = 0.86, F(1,164) = 7.37, p < .01$ ). Together, these findings supported H2.4 and H2.3 for the gain condition.



**Fig. 1** Total and direct effects within the mediation model of motivation on preferences for gains. Findings revealed that the effect of motivation on preferences is fully mediated by frequency-related, feeling-related, and scope-related thoughts. The coefficients are standardized regression coefficients.  $*p < .10$ ;  $**p < .05$ ;  $***p < .01$

*Mediation analysis.* In order to examine the underlying process, mediation analyses were conducted for each thought category. All analyses used the bootstrap test developed by Preacher and Hayes (2008) to test for mediation. The bootstrap test for indirect effects offers various advantages over the Baron and Kenny (1986) approach (for a recent summary, see Zhao et al. 2010). Motivation (accuracy and feeling motivation) were included into the model as predictors, the scores of frequency-related thoughts, scope-related thoughts and feeling-related thoughts as possible mediators, and the preference as the dependent variable.

For gains, consistent with the findings of the ANOVA, the bootstrap test identifies a significant total effect of motivation on preferences ( $c = 1.61$ ,  $p < .05$ , see Fig. 1).

To establish indirect mediation effects,  $a \times b$  must be statistically significant. The mean indirect effect of the frequency related thoughts is both positive and significant,  $a_1 \times b_1 = .87$ , with a 95 % confidence interval excluding zero (.18 to 1.70). The mean indirect effect of feeling-related thoughts is positive,  $a_2 \times b_2 = .35$ , with a 95 % confidence interval excluding zero (.02 to 1.03). Plus, the mean indirect effect of scope-related thoughts is positive,  $a_3 \times b_3 = .23$ , with a 95 % confidence interval excluding zero (.01 to .63).

If we include indirect effects into the model, the direct effect of motivation on preferences turns out to be no longer significant,  $c' = .17$ ,  $p = .80$ . Therefore, by including the mediators in the path model, we establish what Baron and Kenny (1986) call full mediation and Zhao et al. (2010) call indirect-only mediation. For losses, the results yielded no significant mediation.

### 2.3.6 Discussion

Results of Study 1 support the hypotheses that motives have an impact on preferences for segregated or integrated gains. Findings in the gain condition

confirm the hypothesis proposed for the influence of motivation on preferences. A valuation guided by feelings induces a greater preference for segregated gains than a valuation guided by accuracy. Process data revealed that participants motivated by feelings were more sensitive to the heuristic cue of segregated gains compared to integrated gains, whereas those motivated by accuracy concerns were less influenced by the heuristic cue when evaluating gains and focused more on the scope of the loss or gain. Additionally, the data confirms that thoughts mediate the effect of motivation on preferences.

In the loss condition, our predictions were partially supported. A valuation motivated by feelings indeed induced a preference for integration when people evaluated losses, but a valuation by accuracy also triggered an equally strong preference for an integration of losses as did a valuation by feelings. This leads to the intriguing thesis that losses may behave differently from gains. Because the value function is steeper for losses than for gains (Ariely et al. 2005; Kahneman et al. 1991), a loss is regarded as more painful than a gain of equal value is regarded as pleasurable. We suggest that in the case of losses, for both accuracy-motivated and feeling-motivated individuals, loss aversion might induce a stronger need to avoid negative feelings, eliciting a desire to seek the more pleasurable option. As a consequence, loss aversion is assumed to induce a directional motivation that triggers heuristic processing, which in turn might have biased the systematic processing of accuracy-motivated subjects. Process evidence supports this contention.

In line with previous research (Slovic et al. 2004; Payne and Bettman 2004), the results strongly support the notion that feelings or affect play a crucial role in the investigated preference formation processes. However, in this first study, the influence of feelings has only been substantiated at a generic level. To fully understand the impact of affect on preferences for integration or segregation of gains and losses, further research is needed to determine the influence of different affective states in more detail. Therefore, the second study investigates the impact of positive and negative affect on preferences when people decide between segregated and integrated gains and losses.

### 3 Impact of affect on preferences

#### 3.1 Theoretical background

An extensive body of research confirms that affect influences information processing strategies and subsequent preference formation (Schwarz and Bless 1991; Wegener et al. 1995; Martin et al. 1993; Kim et al. 2010). Essentially, this past research differentiates between informational goals (Bless et al. 1996) and mood-management goals (i.e. the desire to maintain positive and to repair negative mood states) (Wegener et al. 1995; Wegener and Petty 1994). While informational needs are found to induce systematic information processing, mood-management goals tend to trigger heuristic processing and the choice of the more rewarding option (Raghunathan and Corfman 2004). In this respect, people face a complex

dilemma between informational goals and mood-management motives (Wegener et al. 1995). However, evidence on how the dilemma is resolved and on the conditions that lead to the different influences of affect remains inconclusive. The mood as information approach proposes that a negative mood state signals that the situation poses a problem. Therefore, sad people are motivated to use more systematic information processing while happiness, in contrast, signals that the situation is benign and therefore heuristic processing is sufficient to elaborate on the situation (Bless et al. 1996). However, positive affective states are also proposed to enable more elaborate reasoning or systematic information processing (Isen et al. 1987), particularly when processing positively valenced information (Wegener et al. 1995).

Likewise, evidence on the influence of negative mood is not conclusive. While Wegener et al. (1995) find that sad people process both negative and positive messages systematically, other research conveys that sadness may also induce heuristic processing when this helps to repair negative mood (Raghunathan and Corfman 2004).

Moreover, previous research on how affect influences evaluations of gains and losses is lacking. Therefore, in this research we investigate the impact of affect on preferences for segregated versus integrated gains and losses. Additionally, this research investigates the underlying information processes that lead to the observed preference patterns, suggesting that the effect of affect on valuation and preferences is mediated by information processing.

### 3.2 Hypotheses development

To explain the inconsistencies in previous theorizing and research, we propose the *hedonic valuation hypothesis* to predict the influence of positive and negative affect on information processing and preferences for segregated versus integrated gains and losses. The hedonic valuation hypothesis attempts to reconcile mood-management theories (Raghunathan and Corfman 2004; Wegener et al. 1995), defining the conditions determining mood-management motivations.

The hedonic valuation hypothesis posits that a valuation both by positive and by negative affect can be guided by mood-management goals. However, we propose that the mood-management goal is only elicited if the valence of the initial mood (i.e. negative) is incongruent with the valence of an event (i.e. a gain).

Because gains do not threaten the positive affect of participants in a positive affective state, they do not feel the need to manage their mood. Therefore, people in positive affective states elaborate the information on gains by employing a more systematic way of information processing (Wegener et al. 1995). Previous research corroborates that notion, suggesting that positive moods cause people to be more efficient in problem solving (Isen et al. 1987), and to bring more information to mind than negative moods (Mackie and Worth 1991).

Further, the hedonic valuation hypothesis predicts that sad people respond in a different way to gains than happy people. Sadness is associated with pessimism and depression and signals that something is amiss (Raghunathan and Corfman 2004; Rucker and Petty 2004; Raghunathan and Pham 1999). Therefore, sadness induces

the goal to seek pleasurable stimuli to repair the negative affective state when evaluating a gain (Raghunathan and Trope 2002; Raghunathan and Corfman 2004; Raghunathan and Pham 1999; Parrott and Sabini 1990). Therefore, sad people seek the more pleasurable outcome of segregated gains induced by mood-management goals. Assuming that segregated gains are more pleasurable than integrated gains (Thaler 1985) this reasoning results in the following hypothesis:

H4.1 Negative affect (positive affect) leads to a higher (lower) preference for a segregation instead of a segregation of gains

Systematic processing under positive affect is not expected in the mood-threatening loss condition. We propose that when people evaluate losses, positive affect induces heuristic information processing. Similarly to mood-management approaches, the hedonic valuation hypothesis proposes that losses threaten a positive mood and happy participants process the corresponding information heuristically (Wegener et al. 1995). Attempting mood-management, participants in positive affect should be interested in protecting their positive mood and should thus prefer the less upsetting option, the integrated losses.

Negative affect, in contrast, is related to depression and greater pessimism and leads to a preference for passivity (Raghunathan and Pham 1999; Raghunathan and Corfman 2004; Rucker and Petty 2004). These properties of sadness have a specific effect when a person is evaluating a loss as compared to evaluating a gain. The hedonic valuation hypothesis proposes that pessimism and the preference for passivity cause sad people to process information on losses without acknowledging the heuristic cue or processing it in a systematic way, which results in a low preference for integration or segregation of losses. Taken together, this leads to the following hypothesis for losses:

H4.2 When evaluating losses, positive (negative) affect leads to a higher (lower) preference for integration instead of a segregation

*Cognitions.* The predictions for information processing are in accordance with the findings in the first experiment. In the case of gains, since sadness (vs. happiness) should lead to heuristic processing, sad people should be more attentive to the heuristic cue (of frequency of occurrence) in the case of gains. In contrast, for the loss condition, happiness (vs. sadness) is expected to lead to a greater focus on the heuristic cue. Therefore,

H5.1a When evaluating gains, negative (positive) affect induces more (fewer) thoughts on the number of occurrences of events

H5.1b When evaluating losses, positive (negative) affect induces more (fewer) thoughts on the number of occurrences of events

Similarly, happy individuals can be predicted to process gains systematically and are therefore sensitive to the scope of the events (Hsee and Rottenstreich 2004). Hence, happiness will lead to a higher elaboration of the objective outcome of the positive or negative event. Thus, this research suggests that in comparison with sad

people, happy people produce more thoughts on the amount of dollars won. In contrast, because sad people are expected to have no motivation to process information, they—like happy people—are not expected to elaborate on the amount of dollars lost.

H5.2a When evaluating gains, negative (positive) affect induces fewer (more) thoughts on the amount won

H5.2b When evaluating losses, positive and negative affect induce an equally low number of thoughts on the amount lost

We expect the effect of affect on preferences to be mediated by information processing. Exceptions are the scope-related thoughts in the loss condition because these thoughts are not expected to influence preference formation.

H6 The affect influence on preferences for integrated versus segregated gains and losses is mediated by information processing

We tested these hypotheses in study 2.

### 3.3 Empirical study

#### 3.3.1 *Methods*

*Design and participants.* 90 university students completed the study in exchange for \$5. Participants were randomly assigned to a 2 (affect: positive versus negative) by 2 (type of event: gains versus losses) between-subjects factorial design.

*Procedure.* Similarly to the first experiment, the experimental session consisted of two purportedly unrelated studies. In this experiment, the first study manipulated affect by employing a priming task. Participants were told that the first study was focused on how people remember emotional events. They were asked to recall and describe a single autobiographical event. The affect induction was followed by manipulation checks and control measures related to affect. After completing this task, subjects were thanked and were introduced to the second study. The rest of the procedure was identical to Study 1. Following the completion of the experiment, participants were fully debriefed and were thanked for their participation.

#### 3.3.2 *Independent variables*

*Affect.* Based on the affect induction task originally used by Strack, Schwarz, and Gschneidinger (1985), participants were asked to recall an event in their life that caused them to feel sad (happy) (Tiedens and Linton 2001; Lerner et al. 2003; Maheswaran and Chen 2006). They were encouraged to take a few minutes to re-experience the event as vividly as they could and asked to describe the event in great detail by including as many concrete and experiential aspects as possible. Participants were instructed to take about seven minutes to write down their description.

*Gain and loss scenarios.* The gain and loss scenarios used were identical to the materials used in the first study (see “Appendix”).

### 3.3.3 Dependent variables

*Preference and cognitions.* The measures for preference and cognition were identical to the measures used in Study 1.

*Manipulation check.* The measure was adapted from Lerner and Keltner (2000) and consisted of a thirteen-item emotion self-report form. In addition to the target emotions happiness and sadness, the emotion form included the items *angry, fearful, peaceful, relaxed, cheerful, anxious, depressed, low, agitated, nervous* and *mad*. Participants rated the extent to which they felt each of the thirteen emotions at the present moment on a 9-point scale ranging from “not at all” (1) to “very strongly” (9).

*Control measures.* The control measures were identical to the measures used in the first experiment. These did not have an impact and will not be discussed further.

### 3.3.4 Results

To analyze the data, a 2 (type of event: gain versus loss) by 2 (affect: negative versus positive) between-subjects ANOVA was employed.

*Manipulation check.* Participants who wrote about a sad autobiographical event rated themselves as feeling sadder than participants who reported about a happy event ( $M_{Sad} = 4.52$  vs.  $M_{Happy} = 2.00$ ,  $t(42) = -5.07$ ,  $p < .001$ ). Accordingly, participants who were primed to feel happy (vs. sad) reported higher levels of happiness ( $M_{Happy} = 5.19$  vs.  $M_{Sad} = 2.67$ ,  $t(42) = 5.50$ ,  $p < .001$ ).

*Affect and preference.* A  $2 \times 2$  between-subjects ANOVA on preference revealed a main effect of affect, indicating that a negative (vs. positive) affect induced a higher preference for segregation in both the loss and gain conditions ( $M_{Sad} = 7.07$  vs.  $M_{Happy} = 4.96$ ,  $F(1,86) = 11.00$ ,  $p < .01$ ). A main effect of the type of event was also observed, indicating that in the gain condition, there was a higher preference for the segregated frame, whereas for losses, integration was preferred ( $M_{Gain} = 8.11$  vs.  $M_{Loss} = 4.00$ ,  $F(1,86) = 41.52$ ,  $p < .001$ ).

More importantly, to examine the effects of affect on gains and losses separately, simple effect analyses were conducted within the gain and within the loss condition. In the gain condition, participants in the negative (vs. positive) affect reported a higher preference for segregation ( $M_{Sad} = 9.32$  vs.  $M_{Happy} = 6.91$ ,  $F(1,84) = 6.97$ ,  $p < .05$ ). This result is consistent with Hypothesis 4.1, predicting a stronger preference for segregation for participants in a negative affect. In the loss condition, happy (vs. sad) participants preferred integration more strongly ( $M_{Happy} = 3.09$  vs.  $M_{Sad} = 4.91$ ,  $F(1,84) = 4.18$ ,  $p < .05$ ). In line with Hypothesis 4.2, this result indicates that positive affect induces a higher preference for integrated losses. In contrast, participants in the negative affect do not seem to be influenced by the heuristic cue and show a lower preference for an integration of losses (cf. Table 1).

*Cognitions. Affect and information processing.* The hypotheses on information processing (Hypotheses 5.1 and 5.2) were examined using subjects’ cognitive

**Table 1** Means and standard deviations of key dependent measures as a function of type of event and motivation or affect

	Motivation (cell ns range from 40 to 46)				Affect (cell ns range from 22 to 23)			
	Gains		Losses		Gains		Losses	
	Valuation by accuracy	Valuation by feelings	Valuation by accuracy	Valuation by feelings	Positive affect	Negative affect	Positive affect	Negative affect
Preference	5.46 (3.37)	7.37 (3.50)	3.70 (2.80)	3.73 (2.78)	6.91 (3.88)	9.32 (2.57)	3.09 (2.25)	4.91 (3.25)
FQRT	0.46 (.59)	.78 (.65)	.80 (.52)	.98 (.57)	.86 (.99)	1.55 (.86)	1.65 (1.11)	1.13 (1.10)
SRT	1.07 (.90)	.76 (.58)	.78 (.89)	.34 (.53)	1.27 (.77)	.50 (.67)	.61 (.78)	.82 (.65)
FERT	0.65 (.64)	1.10 (.83)	1.25 (1.15)	1.24 (.89)				

Preferences were assessed on an 11-point scale (1 = integration, 11 = segregation). Values in brackets = Standard Deviation, FQRT = Frequency Frequency-related thoughts; SRT = Scope-related thoughts; FERT = Feeling-related thoughts



responses. The responses to the thought-listing task were classified and analyzed similarly to the first experiment.

*Frequency-related thoughts.* A  $2 \times 2$  ANOVA on the thoughts related to the frequency of occurrence of either positive or negative events (e.g. “Winning twice feels better than winning only once.”) revealed a significant interaction between affect and the type of event ( $F(1,86) = 7.79, p < .01$ ). Simple effects analyses within the gain conditions revealed a significant difference between the number of thoughts on the frequency of occurrence of gains ( $M_{Happy} = 0.86$  vs.  $M_{Sad} = 1.55, F(1,84) = 4.91, p < .05$ ), showing that participants in negative affect thought more often about the frequency of occurrence of gains than participants in positive affect. This finding is consistent with Hypothesis 5.1a that participants in negative affect process gains heuristically. A directional difference for losses was also observed, indicating that participants in positive affect thought more often about the number of losses than participants in negative affect ( $M_{Happy} = 1.65$  vs.  $M_{Sad} = 1.13, F(1,84) = 3.00, p < .1$ ). This finding provides support for Hypothesis 5.1b, confirming that people in positive (vs. negative) affect process losses heuristically.

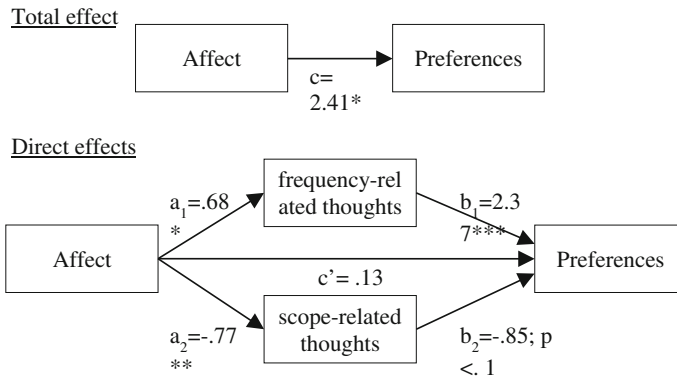
*Scope-related thoughts.* A  $2 \times 2$  ANOVA on the number of thoughts related to the scope: the dollar amount lost or won yielded a reliable interaction of the type of event and affect ( $F(1,86) = 10.62, p < .01$ ). Simple effects analyses within the gain condition revealed a significant difference, indicating that participants in positive affect listed more thoughts related to the amount won than participants in negative affect ( $M_{Happy} = 1.27$  vs.  $M_{Sad} = 0.50, F(1,84) = 12.62, p < .01$ ). In contrast, a reliable difference in the loss condition was not observed ( $M_{Happy} = 0.60$  vs.  $M_{Sad} = 0.82, F < 2$ ), providing support for Hypothesis 5.2b. In sum, subjects in positive affect seem to be more sensitive to the scope of a gain but less to the scope of a loss, supporting the hypothesis (Hypothesis 5.2a) that participants in positive affect process gains systematically.

In order to test Hypothesis 6, mediation analyses were conducted for the two relevant thought categories, the frequency of occurrence of events and the scope of the event. Separate mediation analyses were conducted for gains and for losses. Both sets of analyses used identical procedures, using the bootstrap test developed by Preacher and Hayes (2008) to test for mediation. First, mediation analyses for gains are reported, followed by mediation analysis for the loss condition.

*Mediation analyses for the gain condition.* For gains, affect (positive and negative affect) were included into the model as predictors, the scores of frequency-related thoughts and scope-related thoughts as possible mediators, and preference as the dependent variable. Consistent with the findings of the ANOVA and consistent with Hypothesis 6, the bootstrap test identifies a significant total effect of motivation on preferences ( $c = 2.41, p < .05$ , see Fig. 2).

To establish indirect mediation effects,  $a \times b$  must be statistically significant.

Analyzing frequency-related thoughts, we find that the indirect effect is both positive and significant,  $a_1 \times b_1 = 1.61$ , with a 95 % confidence interval excluding zero (.28 to 3.43). Furthermore, the mean indirect effect of feeling-related thoughts is also positive,  $a_2 \times b_2 = .65$ , with a 95 % confidence interval excluding zero (.03 to 1.66). Including these indirect effects into the model, we find that the direct effect of affect on preferences is no longer significant,  $c' = .13, p = .87$ . Therefore, for



**Fig. 2** Total and direct effects within the mediation model of affect on preferences for gains. Findings revealed that the effect of affect on preferences is fully mediated by frequency-related and scope-related thoughts. The coefficients are standardized regression coefficients. \* $p < .10$ ; \*\* $p < .05$ ; \*\*\* $p < .01$

the gain condition, we establish that the effect of affect on preferences is fully mediated (Baron and Kenny 1986) or indirect-only mediated (Zhao et al. 2010) by frequency-related and feeling-related thoughts.

*Mediation analyses for the loss condition.* For losses, affect (positive and negative affect) were included into the model as predictors, the scores of frequency-related thoughts as a possible mediator, and preference as the dependent variable. However, results do not support the hypothesis, yielding no significant interaction.

In sum, the mediation analyses provide partial support for the hypothesis that thoughts mediated the impact of affect on preferences (Hypothesis 6). The data reveals mediation when individuals evaluate gains for thoughts related to the frequency of occurrence of gains and the amount of dollars won. The analyses also reveal no mediation for losses.

### 3.3.5 Discussion

The findings confirm the predictions proposed by the hedonic valuation hypothesis. In sum, mood-management goals seem to be induced by an interaction of the valence of the initial affect and the valence of the event that is evaluated. It is proposed that mood-management goals influence information processing and preferences if the valence of the affect (e.g. sadness) is incongruent with the valence of the event (e.g. a gain), leading presumably to heuristic information processing and a preference for segregated gains and integrated losses. The interaction of positive affect and a positive event—as suggested by these findings—leads to systematic processing, whereas the interaction between a negative mood and a negative event induces no specific mode of information processing, triggering a low preference for integrated losses.

## 4 General discussion

This research enhances the understanding of the influence of motivation and affect on the valuation of multiple gains and losses and the corresponding underlying information processes. Kahneman and Tversky's (1979) prospect theory and its value function are employed to develop an understanding of the psychology of valuation. Our work makes significant contributions and offers rich avenues for future research.

### 4.1 Motivation and information processing

The first experiment was designed to examine the influence of motivation on the evaluation of segregated versus integrated gains and losses and the corresponding underlying information processes. Evidence reveals that the motivation to value by feelings induces heuristic information processing for gains and losses, leading to a higher preference for segregated gains and integrated losses. The motivation to value by accuracy fosters systematic information processing for gains, inducing lower preference for a segregation of gains as compared to a valuation by feelings. The motivation to value by accuracy also induces biased systematic information processing for losses, leading to a preference for integrated losses.

This research confirms and extends past research, indicating that motivation—mediated by information processing—influences preferences for segregated or integrated gains. Specifically, the findings help to define the conditions in which the hedonic editing rules apply (Thaler 1985). The hedonic editing rules are applicable if people evaluate gains while motivated to feel good or to avoid feeling bad. If a motivation to value by accuracy prevails, people's value functions seem to be comparably more linear, resulting in a lower preference for segregated gains. Process data indicates systematic information processing. Taken together, these findings are in line with previous research that finds more linear value functions under the influence of systematic information processing (Hsee and Rottenstreich 2004; Schunk and Betsch 2005). Overall, the evidence supports the notion that people's value functions might be more flexible than predicted by prospect theory (Kahneman and Tversky 1979), depending on people's current goals. Hence, this finding extends past research by enhancing our knowledge of the condition—valuation by accuracy motivation—that leads to more linear value functions when valuating gains. This finding adds to recent research criticizing too general an application of prospect theory to all decision-making processes (Birnbau 2006).

However, motivational influence on the valuation of losses has proven to be more complex than predicted. While we anticipated similar patterns of responses for gains and losses, our findings suggest that the influence of accuracy motivation on preferences for segregation versus integration depends on whether people evaluate a gain or a loss. Consistent with this notion is the finding that the type of event (gain versus loss) produces reliable effects on cognitive responses, indicating more systematic information processing for gains than for losses. This finding corroborates the conception that losses—due to loss aversion—induce stronger feelings (Ariely et al. 2005; Camerer 2005; Kahneman and Tversky 1991) and might

therefore trigger the use of a more heuristic information-processing mode. The findings of this study are an important contribution to existing theory because they suggest that the influence of motivation on preference formation interacts with the type of event (gain versus loss) that is evaluated.

#### 4.2 Affect and information processing

The second experiment addresses the research questions related to the impact of affect on the evaluation of segregated versus integrated gains and losses and the underlying information processing. In line with predictions on the basis of the hedonic valuation hypothesis, results suggest that mood-management determines information processing and preferences depending on the congruence of the valence of affect (e.g. negative such as sadness) and the valence event (e.g. a positive event such as a gain). Specifically, the incongruence caused by negative affect and a positive event elicits a heuristic information-processing mode and a preference for segregated gains and integrated losses, respectively. In contrast, the interaction of positive affect and a positive event induces systematic processing, resulting in a relatively low preference for a segregation of gains. The interaction between a negative affect and a negative event, on the other hand, does not lead to any specific mode of information processing, which results in a relatively low preference for an integration of losses.

The second study extends past research by directly investigating the effect of affect on the valuation of multiple gains and losses. This research contributes to mood-management research by defining the conditions (incongruence between valence of mood and valence of an event) that elicit a mood-management goal.

Additionally, this research adds to the existing knowledge about the influence of affect on information processing by identifying the conditions that determine which approach (mood-as-information or mood-management) is suited to explaining preferences and information processing in the context of evaluating multiple gains and losses. Overall, in the context of the valuation of gains and losses, mood-management motives (Raghunathan and Corfman 2004; Wegener and Petty 1994; Wegener et al. 1995) seem to be more influential than the informational function (Schwarz 1990; Bless et al. 1996) that affect conveys.

#### 4.3 Limitations and future directions

Some findings of this research remain inconclusive and call for further investigation. In both studies the present investigation cannot reliably determine the mediating information processes for losses. The reasons for the lack of mediation for losses remain to be investigated.

This research also faces some general limitations: Recent research on discrete emotions and information processing finds that differential positive emotions (e.g. happiness, hope, etc.) as well as negative emotions (e.g. sadness, fear, anxiety, etc.) have a differential influence on information processing (Lerner and Keltner 2000; Raghunathan and Corfman 2004). As this research is limited to positive and negative affect, further research including different types of discrete emotions is

necessary in order to establish the emotional effects on valuation in a comprehensive way.

With regard to managerial implications, the sample consisting of student subjects needs to be taken into consideration. A question that remains to be answered is whether experiments using a sample drawn from the normal population would come to the same conclusions.

#### 4.4 Managerial implications and conclusions

This research enhances the understanding of how motivation and affect influence information processing, valuation and the corresponding preference patterns for segregated versus integrated gains and losses. Notwithstanding its limitations, this research contributes to existing literature on motivated information processing and preference formation, conveying how motives influence the way people think about and evaluate multiple gains and losses.

From a practical viewpoint this research adds to managerial knowledge on price communication, bundling (Chakravarti et al. 2002; Soman and Gourville 2001), surcharges (Morwitz et al. 1998), and sequences of payments (Gourville 1998). When designing pricing, salary or other compensation schemes managers should consider this research's findings with regard whether their target group tends to be more accuracy or more feeling motivated. For example, for a more hedonic sports car, surcharges should be presented in an integrated way, presuming that the respective customers will process price information heuristically and therefore prefer integrated losses. For the utilitarian service car, however, the type of price communication is not expected to influence preferences.

Likewise, additional benefits (e.g. rebates) for a hedonic leisure cruise should be presented in a segregated way, presuming that in this case, consumers' information processing is motivated by feelings (and not by accuracy). Whereas, results of this research suggest that for a utilitarian business trip price communication of rebates does not influence consumer choice.

Especially in the domain of pricing, managers tend to favor tactics which are based on their own experience. For example, a manager of a truck division might be convinced by his experience that integration and segregation of price information does not affect demand. Should this manager, however, move to the luxury car division, he may need to revise his experience and consider the integration and segregation of price information as an effective price tactic in that division.

All instruments used to define the optimal price, such as conjoint measurement or auction models, are based on the assumption that a consumer cognitively evaluates the given price information and ends up with a rational price judgment. This research shows, however, that the affective state of a consumer influences the effectiveness of the various price tactics which requires a fresh look on well-established instruments. Although the importance of price emotions seems to be understood in the academic literature (Peine et al. 2012), pricing research as carried out by many companies ignores the affective state of the consumers. Taking the affective state of the consumer into account can be done either by adding questions to the research design (Peine et al. 2012) or by considering the type of price decision as an indicator.

Customers evaluating various holiday destinations, for example, might have different affective responses than consumers deciding on medical treatment.

Moreover, this research offers some insight into the impact of affect on valuation and establishes that gains and losses elicit different mood-management and processing goals, depending on a perceiver's affect. More specifically, a mood-management motivation only seems to be triggered when the valence of the perceiver's mood (e.g. happiness) is incongruent with the valence of the event to be evaluated (e.g. a loss), motivating the perceiver to adopt a more heuristic or intuitive way of information processing. Managers should consider accounting for the possible influence of affect when they impart value related information. In a field where negative affect prevails (e.g. taxes, health insurance, health communication, prevention) other rules apply than in areas where positive affect is to be expected (e.g. travel agencies, hospitality services, entertainment industries). For example in the context of health communication, positive effects (gains) of a medicine should be communicated in a segregated way, presuming that customers under negative emotions process information on gains heuristically and prefer a segregation. Moreover, surcharges of a leisure week-end should be communicated in an integrated way, because we expect customers under positive emotion to process information on losses systematically and thus to prefer integrated losses.

In general, this research contributes to existing theory, suggesting that the influence of motivation and affect interacts with the type of event (gain versus loss, or positive versus negative) that people evaluate. In that sense, the findings suggest that it is a person's motivation or affect that influences the way in which people perceive values and form preferences. Moreover, findings of previous research on price bundling and surcharges should be reexamined with respect to the motivational and emotional implications of the consumer experience.

This research might help to enhance the understanding of the psychology of valuation by showing that valuation, the resulting preferences and subsequently the decision-making depend to a large extent on people's goals and feelings. In sum, this research offers a richer explanation for preference and valuation processes, suggesting that there is a higher logic behind how values are perceived that depends on whether accuracy or hedonism prevails.

## Appendix

Scenario for integrated gains:

- A. Today your local store is offering every customer a ticket for its lottery. Although you do not usually participate in lotteries, you get a ticket as it is free. When you look at your ticket, you realize that you have won \$230 in cash.

Scenario for segregated gains:

- B. Today a campus organization is organizing a lottery. You get a ticket for free and you win \$120 in cash. Later in the day you win \$110 in cash in a free lottery organized by your local store.

Scenario for integrated losses:

- C. After coming home from school or work, you count how much money you have in your wallet. You realize that you have lost \$230 in cash on your way home today.

Scenario for segregated losses:

- D. While getting a coffee in the cafeteria you realize that you lost \$110 in cash in the subway today. It must have fallen out of your pocket. Later in the day you get a newspaper and you lose \$120 in cash while paying.

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