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„Affective forecasting and consumer behaviour“

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Contents

Introduction	1
Outline	4
Article 1: Consumption-related emotions over time: Fit between prediction and experience.....	5
Article 2: Hedonic evaluations of cars: Effects of payment mode on prediction and experience	6
Article 3: Experience, prediction and recollection of loan burden.....	8
Article 4: Influence of anticipated emotions on consumer decisions: Examining the role of product type and belief in adaptation	9
General Discussion	11
Limitations	13
Theoretical implications.....	14
Practical implications	15
Conclusion	16
References	16
Conference contributions	20
Article 1	23
Article 2	41
Article 3	71
Article 4	83
Curriculum Vitae	111

Introduction

In everyday life, people often predict how they will feel in the future. They predict whether a new relationship will make them happy, how stressed they will be in a new job, or how pleased they will feel when watching a newly bought flat screen TV. Research on *affective forecasting* indicates that such predicted emotions often do not correspond with subsequent actual experienced emotions (for reviews see G. Loewenstein & D. Schkade, 1999; MacInnis, Patrick, & Park, 2005; T. D. Wilson & Gilbert, 2003). One of the central findings of affective forecasting is that people tend to overestimate the intensity and duration of emotional reactions to future events. This so-called *impact bias* has been documented for positive as well as negative events. For instance, football fans overestimate how happy they will be after their favorite team wins (T. D. Wilson, Wheatley, Meyers, Gilbert, & Axsom, 2000), or people overestimate their negative emotions after the dissolution of a romantic relationship (Gilbert, Pinel, Wilson, Blumberg, & Wheatley, 1998).

Many researchers point out that affective forecasting is also relevant in the consumer context (G. Loewenstein & D. Schkade, 1999; MacInnis et al., 2005; Patrick, MacInnis, & Park, 2007; T. D. Wilson & Gilbert, 2003). Loewenstein and Schkade (1999) argue that the accuracy of affective forecasts is relevant for the quality of consumer decisions. Inaccurate forecasts can have an impact on product evaluations (Patrick et al., 2007) and consumer satisfaction (Phillips & Baumgartner, 2002). For example, consumers planning to buy a new car are likely to consider how much pleasure they will experience as a result of having this new car. Alternatively, when deciding to take out a mortgage to buy a home, consumers are likely to consider how much emotional burden the debt will cause. These predictions may then influence consumer decisions and can become problematic if they do not correspond with actual

experienced emotions. If consumers, for instance, overestimate the future positive emotions related to products, or if they underestimate the future negative emotions related to taking out a loan, this can contribute to overconsumption and financial problems. In short, consumers should be able to accurately predict positive as well as negative emotions associated with consumption experiences to ensure optimal decision making and satisfaction. Despite the demonstration of its relevance in the literature, empirical studies examining affective forecasting in the consumer context are rare.

Existing studies in the consumer context have mainly examined emotions and preferences in the context of food consumption. Consumer predictions of future food enjoyment, as well as choices that apply to the future, are influenced by the current state of hunger (Gilbert, Gill, & Wilson, 2002; Read & van Leeuwen, 1998), and consumers overestimate their desire for diversity for future consumption (Read & Loewenstein, 1995; Simonson, 1990).

Many products are consumed over a long period of time; consumers should therefore take into account not only how they will feel after the purchase is made but also how emotions change over the consumption period. A study by Kahneman and Snell (1992) examined predictions and actual experiences of taste change. Participants who consumed yogurt for eight days predicted at the beginning of the experiment that they would like the yogurt less over time; their actual experience, however, showed that their liking, in fact, increased over time. This study provides a first indication that consumers might have problems predicting changes in their emotions and, consequently, inaccurately predict the overall pleasure derived from consumption. However, there is a lack of field studies dealing with predicted and actual change in positive as well as negative emotions associated with real-life consumption situations.

In addition to examining whether consumers predict a change in emotions correctly, it is useful to identify sources of potential biases to find ways to reduce them. Several sources of a mismatch between predicted and experienced emotions are discussed in the literature (for reviews see G. Loewenstein & D. Schkade, 1999; MacInnis et al., 2005; T. D. Wilson & Gilbert, 2003). Two frequently cited sources of biases are *focalism* and *sense making*. Focalism refers to the tendency to focus only on the specific event in the future while neglecting other factors that can influence one's future emotions. Sense making means that people underestimate how quickly they adjust to positive and negative events and therefore overestimate the impact these events will have on their emotions. Whereas these explanations focus on the emotional consequences of single events, another explanation – intuitive theories of hedonics – can also be applied to predictions of changes over time. People hold theories about changes of emotion, namely of adaptation or sensitization (G. Loewenstein & D. Schkade, 1999; T. D. Wilson & Gilbert, 2003). Igou (2004) demonstrated that intuitive theories of change influenced affective forecasts. Consumers may therefore mispredict the change in their emotions if their predictions are guided by an intuitive theory that does not correspond with reality. The existing literature has found overestimation of adaptation in domains like taste (Kahneman & Snell, 1992) or noise (Snell, Gibbs, & Varey, 1995) as well as underestimation of adaptation in domains like disabilities (Ubel, Loewenstein, & Jepson, 2005). The intuitive theory of adaptation could therefore play an important role in the accuracy of predictions of emotional change in the consumer context.

Outline

The goal of this dissertation is to examine the accuracy and relevance of affective forecasts in the consumer context. The dissertation consists of four articles. The first three articles examine the accuracy of consumers' affective forecasts in field studies focusing on predictions of emotional change over time; the fourth article examines the relevance of affective forecasts for consumer decisions. The *first article* explores whether consumers who have just purchased a certain product can correctly predict how their emotions regarding this product will change over time and identifies sources for mispredictions in a longitudinal field survey. The results indicate that consumers tend to overestimate the decrease of positive emotions over time and that this overestimation is linked to an overestimation of adaptation to the product. The *second article* uses a different approach, comparing the predictions of prospective consumers before a purchase with the experiences of actual consumers after a purchase in a cross-sectional field survey. It distinguishes between two different payment modes – down payment vs. installments – and focuses on the question of whether consumers correctly predict how these payment modes will influence the change in their emotions over time. The results indicate that the payment modes have an influence on the course of post-purchase emotions and that consumers do not predict these effects correctly. The first and second articles thus deal with emotions associated with certain products. The second article indicates that predicted emotions may also play a role in the context of credit use. In the credit context, not only emotions associated with the product but also emotions associated with the loan play an important role for consumers. The *third article* therefore examines how consumers predict the change in emotional burden resulting from carrying debt over time in a cross-sectional field survey. The results show that consumers predict a decrease in emotional loan burden over time; however, actual loan

burden does not change over the course of the loan period. The *fourth article* addresses one argument for why the biases found in the other articles are relevant for consumers. It examines whether consumers use predicted emotions to guide their decisions and identifies circumstances under which this influence of predicted emotions on consumer decisions is more or less pronounced. The results of the fourth article confirm that predicted emotions play an important role in consumer decisions. Below, the four articles are described in more detail, after which the results of all articles are discussed jointly.

*Article 1: Consumption-related emotions over time: Fit between prediction and experience*¹

The main goal of the first article was to examine whether consumers who have just made a purchase correctly predict the change in their consumption-related emotions over time. Furthermore, whether a hindsight bias occurs, i.e., whether consumers correctly remember their original predictions, was examined.

A two-wave longitudinal field survey was conducted in Austria and the United Kingdom. In the first wave, a questionnaire was handed out in shoe shops to consumers who had just bought a pair of shoes. Participants indicated their current consumption-related emotions immediately after the purchase and predicted how they would feel about their shoes at a later point in time. In the second wave, a questionnaire was sent to the same participants, who again indicated their current emotions about that particular pair of shoes and were asked to recall their original predictions.

The results showed that participants predicted a decline in positive emotions over time. Current positive emotions indeed declined from wave one to wave two;

¹ Pollai, M., Hoelzl E., & Possas, F. (in press). Consumption-related emotions over time: Fit between prediction and experience. *Marketing Letters*, doi 10.1007/s11002-009-9090-5.

however, participants overestimated the magnitude of this decrease. The prediction of a decline in emotions was associated with a belief in adaptation. Moreover, participants who overestimated their adaptation to the shoes also overestimated the magnitude of the decline in their emotions. Participants did not recall their predictions correctly; recalled predictions were more strongly influenced by actual emotions experienced at wave two than by original predictions. No differences between the two countries were found.

Overall, the first article shows that consumers have problems predicting the change in consumption-related emotions after a purchase and that a belief in adaptation is associated with mispredictions. The article also emphasizes the relevance of hindsight bias, which leads to a lack of awareness of mispredictions and hinders consumers from learning from previous experience.

Article 2: Hedonic evaluations of cars: Effects of payment mode on prediction and experience²

In the first article, consumers predicted the change in their consumption-related emotions after they had already purchased the product. The second article adopted a different perspective by comparing the predictions of prospective consumers before a purchase with the experiences of consumers after a purchase in a cross-sectional design. This article focused on the question of whether different payment modes have an effect on the course of post-purchase emotions over time and whether prospective consumers correctly predict the course of post-purchase emotions and the effects of the payment mode on their emotions. Two theoretical frameworks lead to contradicting hypotheses regarding the influence of payment modes on post-purchase emotions. The theory of mental accounting (Thaler, 1985) suggests that products financed through installments

² Hoelzl, E., Pollai, M., & Kastner, H. (revised and resubmitted). Hedonic evaluations of cars: Effects of payment mode on prediction and experience. *Psychology & Marketing*.

evoke lower positive emotions because the ongoing loan payments reduce the benefit of consumption. Findings on cognitive dissonance (Festinger, 1957), on the other hand, suggest that products financed through installments evoke higher positive emotions because the ongoing loan payments make dissonance reduction more necessary.

Car owners in different ownership phases (first year, second year, third year) and participants planning to buy a car within the next 12 months were recruited to complete an online survey. Owners had to indicate their current emotions regarding their car; planners had to make predictions of their emotional state regarding their car one year, two years, and three years after the purchase. Furthermore, the study distinguished between participants who had financed their car by paying a down payment or were paying in installments (or were planning to do so).

The results showed an interaction between payment mode and post-purchase emotions over time. In the installments group, emotions remained constant after the first year and decreased after the second year. In the down payment group, the pattern was reversed: emotions decreased after the first year and remained constant after the second year. Therefore, in the first and third years, emotions in both groups were similar; in the second year, emotions in the installment group were higher than in the down payment group. Consumers planning to buy via both payment modes, however, predicted a similar linear decrease in their emotions over time. Thus, planners did not forecast the influence of payment mode on the course of their emotions over time. The different courses of emotions depending on the payment mode cannot be explained by either of the two theoretical frameworks, mental accounting or cognitive dissonance, alone. We therefore suggest expanding the theory of mental accounting to include cognitive dissonance elements.

Overall, the second article shows that the chosen payment mode has an influence on the course of post-purchase emotions over time and that consumers are not aware of these effects before a purchase.

*Article 3: Experience, prediction and recollection of loan burden*³

The first two articles dealt with emotions associated with certain products. In the loan context, emotions associated with the loan itself are additionally relevant. Taking out a loan involves an emotional burden, e.g., due to feelings of obligation and constraint. Ideally, people would not only correctly predict their positive emotions associated with the product but also the emotional burden of the loan, especially when considering long-term commitments such as taking out a loan for real estate. The third article examined how loan users predict the change in emotional loan burden in the future, how they recollect such change in the past and whether these predictions and recollections fit the actual experience of the course of loan burdens over time. Additionally, whether loan burden can be explained by the degree of cost-benefit associations, i.e., the degree to which thoughts of consumption evoke thoughts of payment and vice versa (Prelec & Loewenstein, 1998), was examined.

A cross-sectional field survey was conducted with homeowners grouped by duration of living in their loan-financed home (group 1: up to 5 years; group 2: 6-10 years; group 3: 11-15 years). All groups reported their current experience of loan burden. Additionally, group 1 reported predictions for 5 and 10 years in the future, group 2 predictions for 5 years in the future and recollections for 5 years in the past, and group 3 recollections for 5 and 10 years in the past.

³ Hoelzl, E., Pollai, M., & Kamleitner, B. (2009). Experience, prediction and recollection of loan burden. *Journal of Economic Psychology*, 30 (3), 446-454.

Results showed that participants at all stages reported similar current loan burdens; loan burden therefore did not seem to change over time. However, participants predicted a decrease in loan burden in the future and also recollected a decrease in loan burden in the past. They therefore overestimated the decrease in loan burden over time. Loan burden was influenced by cost-benefit associations in only one direction – the degree to which thoughts of the home evoked thoughts of the loan. The stronger this association, the higher the loan burden reported by homeowners.

Overall, the third article indicates that homeowners underestimate the overall emotional loan burden over the loan period. People might hold a belief of adaptation to the loan burden that contributes to misforecasts.

Article 4: Influence of anticipated emotions on consumer decisions: Examining the role of product type and belief in adaptation⁴

The fourth article focused on one argument for why affective forecasts and biases, as addressed in the first three articles, are relevant in the consumer context. The article addresses the question under which circumstances anticipated emotions influence consumer decisions. Although there is evidence that people base their decisions on anticipated emotions (Mellers, 2000; Mellers & McGraw, 2001; Mellers, Schwartz, & Ritov, 1999; Shiv & Huber, 2000; Wiener et al., 2007), other authors argue that people do not adequately consider anticipated emotions when making decisions (Hsee & Hastie, 2006; Hsee, Zhang, Yu, & Xi, 2003). This inconsistency points to the relevance of variables that moderate the influence of anticipated emotions on consumer decisions. First, one plausible moderator is the type of product involved. Emotional considerations may play a more important role for hedonic products than for utilitarian products (Batra

⁴ Pollai, M., Hoelzl E., Hahn, L., & Hahn, A. (submitted). Influence of anticipated emotions on consumer decisions: Examining the role of product type and belief in adaptation. *Journal of Psychology*.

& Ahtola, 1990; Kempf, 1999; Pham, 1998a). Second, the influence of anticipated emotions on consumer decisions may be reduced by focusing on the post-purchase period and thus cuing a belief in adaptation to products (Wang, Novemsky, & Dhar, 2009). Consumers may become aware that emotions fade away with time and cease to base their decisions on anticipated emotions.

The fourth article consists of two studies examining the influence of anticipated consumption-related emotions on the intention to purchase a product and the intention to take out a loan, focusing on the moderating roles of product type (hedonic vs. utilitarian products) and belief in adaptation in this relationship.

The first study examined the moderating role of product type in the influence of anticipated emotions on purchase intention. In an online experiment using purchase scenarios, hedonic and utilitarian products were differentiated in a between-subjects design. The results showed that the higher the level of positive anticipated emotions, the greater the intention to purchase the product. Contrary to expectations, the influence of anticipated emotions on purchase intention was the same for hedonic and utilitarian products.

The second study again explored the moderating role of product type using more expensive and longer lasting products. Additionally, the moderating role of belief in adaptation was included again using purchase scenarios and a between-subjects design. The results indicated that the higher the level of positive anticipated emotions, the greater the intention to take out a loan. As in the first study, product type did not serve as a moderating variable. However, a moderating role of belief in adaptation was found. The influence of anticipated emotions on loan intention was smaller if a belief in adaptation was cued than if no belief was cued.

Overall, the fourth article emphasizes the relevance of anticipated emotions for consumer decisions. The influence of anticipated emotions on consumer decisions is robust across product types. The influence is lessened when a belief in adaptation is cued. Consumers seem to give more weight to rational considerations than to anticipated emotions when they consider that they will consume a product over a long period of time and emotions may fade away.

General Discussion

The dissertation contributes to the affective forecasting literature by examining the accuracy and relevance of affective forecasts in the consumer context. The first three articles indicate that consumer forecasts can be systematically biased, showing misforecasts of emotional change over time. In Articles 1 and 3, the decline in emotions is overestimated: Consumers overestimate the decrease in their positive consumption-related emotions over time, and loan users overestimate the decrease in emotional loan burden over the loan period. The overestimation of the decrease in emotions can be found in both of these articles despite the fact that different research designs were applied, with one study using a longitudinal and the other a cross-sectional design. In both articles, it is argued that these mispredictions of change could be caused by an incorrect intuitive theory of adaptation. The existing literature indicates that intuitive theories guide predictions as well as recollections (Igou, 2004; Ross, 1989). The fact that participants both predicted and recollected a decrease in loan burden in Article 3 supports the explanation that consumers hold an intuitive theory of adaptation. Article 1 also provides evidence for this assumption by showing that a predicted decrease in emotions is linked to a belief in adaptation and that an overestimation of the magnitude of the decrease in emotions is linked to an overestimation of the degree of adaptation.

The two articles show that an overestimation of adaptation can occur for positive consumption experiences like positive consumption-related emotions (Article 1) as well as for negative consumption experiences like emotional loan burden (Article 3). As described in the literature review, the existing literature reports overestimation as well as underestimation of adaptation in different domains. Articles 1 and 3 indicate that in the consumer context, an intuitive theory of adaptation is prevalent and leads to overestimation of adaptation.

Article 2 also supports the assumption that consumers hold an intuitive theory of adaptation because prospective consumers predicted a linear decline in their post-purchase emotions. The belief in adaptation seems to be prevalent for less expensive products like shoes (Article 1) as well as for more expensive and longer lasting products like cars (Article 2). However, the focus of Article 2 is different, showing that different payment modes have an influence on the course of post-purchase emotions and that prospective consumers are not aware of the effects of payment modes on their emotions. The results are explained by a combination of the two theoretical frameworks of mental accounting and cognitive dissonance. This explanation, however, is theoretical, and further research is needed to directly test the mechanisms of mental accounting and cognitive dissonance and their effects on post-purchase emotions depending on different payment modes.

Article 4 provides one argument for why the biases found in the other articles are relevant in the consumer context. It shows that consumer decisions are based on anticipated consumption-related emotions. The intention to purchase a product and even a long-term decision like the intention to take out a loan is influenced by anticipated consumption-related emotions. If people base decisions on their predictions, these predictions should be correct to facilitate optimal consumer decisions and consumer

satisfaction. The article shows that the influence of anticipated emotions on decisions is reduced when a belief in adaptation to products is cued. An interesting approach for future research would be to pursue the suggestion that the process of rationalization plays a role in influencing anticipated emotions and to explore the mechanism leading to rationalization in more detail.

The dissertation contributes not only to the affective forecasting literature but also to the literature on credit use. Article 4 shows that anticipated emotions influence the intention to take out a loan. Article 2 indicates that these anticipated emotions might, however, be biased because consumers are not aware of the effects of the payment mode on their post-purchase emotions. Finally, Article 3 shows that it is not only the anticipated emotions associated with the product that might be biased; consumers might also underestimate the overall emotional burden associated with taking out a loan. Furthermore, Article 3 indicates that underestimation of the loan burden can partly be explained by the underestimation of the home-to-loan association. Credit users are not aware that over the whole credit period, thoughts of the home evoke thoughts of the loan, contributing to a constant emotional loan burden. These biases help to explain why indebtedness is high and why taking out loans can negatively influence psychological well-being.

Limitations

A limitation of the dissertation relates to the generalizability of the results. All articles dealing with the accuracy of predictions focus on only one specific product. Although Article 4 indicates that the influence of predicted emotions on decisions is independent of product type, this might not be the case for the accuracy of predictions. A first indication of the generalizability across product types is that consumers believe in adaptation to shoes as well as to cars. Consumers' attitudes towards the product

might, however, play a more important role than the type of product does. Future studies should therefore incorporate multiple different products into a single study and consider consumers' attitudes towards the product. In addition to generalizability across products, the generalizability across designs could be problematic. The dissertation partly consists of quasi-experimental field studies, which enhance external validity; however, the risk of interfering variables is high, especially in cross-sectional designs. Participants, for instance, could not be randomly assigned to be planners or owners or to different ownership phases. In all studies, possible relevant variables were controlled for; however, more longitudinal studies like that in Article 1 would be desirable.

Theoretical implications

The dissertation suggests theoretical implications, especially in the research area of affective forecasting. As elaborated in Article 1, research on affective forecasting in the consumer context is different from the main stream of research in the affective forecasting literature dealing with the impact bias, i.e., overestimation of emotional reactions to events. First, the impact bias studies focus on general happiness after an event, whereas in the consumer context, specific emotions and preferences regarding specific products are central. Second, the impact bias studies examine emotional reactions to single events like football games, whereas most products are consumed over time, and emotions regarding these products therefore may change over time. If specific emotions in the consumer context are underestimated, this is not inconsistent with the impact bias literature; rather, the focus is different. Therefore, the two most cited sources of the impact bias, focalism and sense making, which explain overestimations of positive as well as negative general feelings after events, cannot be easily applied to the consumer context. This dissertation indicates that in the consumer context, especially when considering predictions of emotional change, intuitive theories

are relevant sources of mispredictions. The results indicate that in the consumer context, an intuitive theory of adaptation to positive as well as negative consumption experiences is prevalent, which leads to an overestimation of emotional change. Further research is needed, however, to identify individual as well as situational variables moderating consumers' intuitive theories. Possible relevant variables could include, for instance, consumers' involvement or consumption goals.

Practical implications

The results of the dissertation suggest practical implications for marketing and consumer organizations. Context information like advertising can activate consumers' intuitive theories and thereby influence anticipated emotions (Baron, 1992; Igou, 2004; Phillips, 1996). Marketing could therefore influence consumer decisions, for instance, by communicating long-lasting emotions associated with products. The results of Article 4 suggest that this is a promising marketing strategy for different types of products, even utilitarian, functional products. However, marketing should be aware of the fact that misforecasts of anticipated emotions – as reported in this dissertation – can lead to consumer dissatisfaction (Patrick et al., 2007; Phillips & Baumgartner, 2002). It should therefore be in the interests of marketers to influence anticipated emotions in a way that increases accuracy. Increasing consumers' accuracy of predicting positive as well as negative effects of consumption and credit use could also reduce problems with credit repayments and indebtedness. It is therefore also in the interest of consumers and hence of consumer and credit counseling organizations to improve the accuracy of anticipated emotions. For instance, when advising people wishing to take out a loan, it should be emphasized that taking out a loan implies not only a financial but also an emotional burden over the whole credit period. Further research, however, is needed to identify more ways to enhance the accuracy of consumers' forecasts. As mentioned

above, a first step would be to clarify whether an overestimation of adaptation and, therefore, an overestimation of the decrease in positive as well as negative emotions, as found in this dissertation, is a general phenomenon in the consumer context and to identify individual as well as contextual variables moderating the direction and strength of biases in predicting emotions.

The results also have implications for marketing research. Product evaluations are often assessed using experimental designs based on scenarios. As these evaluations are hypothetical, they constitute predictions and may not correspond to actual product evaluations. Marketing research should therefore emphasize examining actual consumer decisions and product evaluations in field studies.

Conclusion

To summarize, the dissertation shows that consumers have problems predicting emotional change over time. Consequently, consumers mispredict the overall positive as well as negative consequences of consumption and credit use over the whole consumption period. A relevant mechanism behind these biases is the intuitive theory of adaptation, which leads to an overestimation of emotional change. Furthermore, the dissertation indicates that these biases are problematic for consumers because predicted emotions influence consumer decisions. Mispredictions can consequently lead to suboptimal decisions, consumer dissatisfaction and debt problems.

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Conference contributions

Parts of the dissertation were presented at a number of conferences:

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Pollai, M., Hoelzl, E., & Possas, F. (2009). Prediction bias and hindsight bias of consumption-related emotions. Subjective Probability, Utility and Decision Making SPUDM 22, Rovereto, Italy, August 23-27, 2009.

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Article 1

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Consumption-related emotions over time: Fit between prediction and experience

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Abstract Consumers base many decisions on affective forecasts, i.e., predictions about future emotions. These predictions, however, are susceptible to systematic biases. The present paper examines the accuracy of predicting emotional change in the consumer context. The goals of the study were to examine whether predictions of a change in consumption-related emotions fit actual experienced change and whether original predictions are remembered correctly. A two-wave longitudinal survey with 86 consumers in Austria and the UK showed that consumers who had bought shoes overestimated the decrease of positive consumption-related emotions over time. Results indicate that the intuitive theory of adaptation is related to the prediction bias. Moreover, participants misremembered original predictions as more consistent with actual experienced emotions. This hindsight bias hinders consumers from learning from previous prediction errors.


Keywords Affective forecasting · Prediction bias · Hindsight bias · Consumption-related emotions · Consumer behavior

When making decisions, people often take into account how different options will make them feel and how long these feelings will last, and they consider these predicted emotions in their decisions (Loewenstein et al. 2001; Mellers et al. 1999;

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Shiv and Huber 2000; Simonson 1992). For example, consumers who are planning to buy a new car may picture driving the car and may predict positive emotions associated with this experience. Consumers may also predict how these emotions will change with the duration of ownership—whether emotions last for a long time or fade away quickly. These predictions about change in emotions may then influence the decision to buy the car or the amount of money consumers are willing to spend. When thinking about the change in emotions, consumers may take into account beliefs about adaptation—how quickly they will get used to the new car. If consumers believe that the car becomes ordinary with time, they will predict decreasing positive emotions associated with the car. However, if this belief about adaptation is not accurate, predictions about decreasing emotions will be incorrect as well.

In the domain of consumer behavior, consumption-related emotions are a relevant factor for decisions (Derbaix and Pham 1991; Havlena and Holbrook 1986; Hirschman and Morris 1982; Holbrook and Hirschman 1982). Consumption-related emotions refer to the set of emotions experienced in the post-purchase period resulting from consumption itself. It was shown that consumption-related emotions relate to consumer satisfaction (Mano and Oliver 1993; Phillips and Baumgartner 2002; Westbrook and Oliver 1991) and post-consumption behavior such as positive and negative word-of-mouth, repurchase intention, and complaint behavior (Ladhari 2007; Soscia 2007). Moreover, not only experienced but also predicted consumption-related emotions and the discrepancy between predicted and experienced emotions influence consumer satisfaction (Phillips and Baumgartner 2002). Consumers should therefore be able to predict consumption-related emotions accurately in order to make optimal decisions and to enhance satisfaction. As many products are consumed over a long period of time, it is particularly important for consumers not only to consider initial pleasure but also pleasure over the total lifetime of the product; therefore, consumers need to consider how consumption-related emotions change the longer they own a product. The main goal of the present study was to compare predictions of a change in consumption-related emotions with actual experienced change in a longitudinal field setting and to explore the role of beliefs about adaptation and of temporal separation. In addition, it was explored whether consumers are able to recall predictions of consumption-related emotions correctly. A better understanding of the dynamics of change in consumption-related emotions and their subjective perception can contribute to better-informed consumer decisions.

1 Prediction bias about change in emotions

Research on *affective forecasting*, i.e., predictions about future emotions, indicates that people make systematic errors in predicting emotions (for reviews, see Loewenstein and Schkade 1999; MacInnis et al. 2005; Wilson and Gilbert 2003). According to MacInnis et al. (2005), the term affect is used relatively broadly in the literature on affective forecasting, including different affective experiences such as visceral feelings, preferences or tastes, generalized valenced feelings, as well as specific emotional states. One stream of research showed that people often overestimate the intensity and duration of emotional reactions to events and, hence, overestimate the impact that future events will have on their general well-being. This so-called *impact bias* has

been documented for positive events such as sports victories (Meyvis et al. 2007; Wilson et al. 2000) or positive test results (Mellers and McGraw 2001), as well as negative events such as romantic breakups (Gilbert et al. 1998) or electoral defeats (Gilbert et al. 1998; Meyvis et al. 2007). Another stream of research, situated in the consumer context, focused not on general feelings after events but on more specific emotions and preferences regarding specific products. Table 1 presents the key findings of these studies. The first three studies examined food choices as index for hedonic predictions. Consumer choices were influenced by the current state of hunger (Gilbert et al. 2002; Read and van Leeuwen 1998), and more variety was chosen when making combined choices for future consumption than when making separate choices immediately before consumption (Simonson 1990). Loewenstein and Adler (1995) examined predicted and actual selling prices for coffee mugs and found that participants were not aware of the endowment effect, underestimating how much they would value an object after receiving it. Two studies showed effects of mispredictions on product evaluation and satisfaction (Patrick et al. 2007; Phillips and Baumgartner 2002). Of special interest for the present study are two studies dealing with predictions of change (Kahneman and Snell 1992; Wang et al. 2009). Kahneman and Snell (1992) examined predictions of a taste change. In a pilot study, participants had to consume ice cream on eight consecutive days. At the beginning of the experiment, they predicted how they would want and like the ice cream over time and then they rated their actual experience every day. Participants expected a decline in liking; however, the actual decrease was smaller than the predicted decrease. In the main study, participants had to consume plain yogurt in a similar setting. Participants again expected a decrease in liking; however, contrary to expectations, their liking for the yogurt increased over time. Although the results of the pilot study and the main study are not completely consistent, one showing a gradual error in the degree of taste change, and the other an error in the direction of taste change, the main conclusion was that people are not able to predict changes in taste. Wang et al. (2009) also examined predictions for different points in time and showed that by making predictions for both near and distant points in the future, a belief in adaptation was cued, and participants thus predicted lower emotions than when only making predictions for one point in time. The main conclusion was that consumers know about adaptation but often fail to take this knowledge into account. This overview of studies in the consumer context shows that there is a lack of field studies dealing with real consumer purchases and the change in consumption-related emotions. Both studies dealing with predictions of change were conducted in a laboratory setting, one using mainly scenarios (Wang et al. 2009) and the other examining enjoyment of food items given to the participants in the course of the experiment (Kahneman and Snell 1992). To derive practical implications for marketing, it seems therefore important to examine predictions in a real-life setting with consumers making real purchases, choosing to spend their own money on a product that is used repeatedly.

A better understanding of consumers' predictions of emotions is important for marketing, both in the pre-purchase and the post-purchase phase. (1) Predictions are relevant in the pre-purchase phase because they can guide consumer decisions (e.g., Shiv and Huber 2000). As marketing stimuli can evoke emotional predictions, certain marketing strategies for hedonic products, e.g., communicating long-lasting pleasure with holidays or luxury products, could be used to influence consumer decisions.

Table 1 Summary of relevant studies dealing with predictions in the consumer context

Study	Participants	Domain/ product	Measures	Time horizon	Results
Gilbert et al. (2002)	S 1: 61 students	S 1: scenario spaghetti	S 1: predicted food enjoyment	S 1: next morning and next evening	Predictions of food enjoyment and food purchases influenced by current hunger
	S 2: 135 consumers	S 2: food purchases	S 2: intended and actual food purchases	S 2: same day	
Read and van Leeuwen (1998)	200 employees	Healthy vs unhealthy snacks	Advanced and immediate choices	1 week	Choices for future consumption influenced by current hunger
Simonson (1990)	S 1: 67 students	S 1: scenario groceries	S 1: hypothetical choice	S 1: 3 days	Diversification bias: more variety chosen when combined choices for future consumption than separate choices immediately before consumption
	S 2: 392 students	S 2 and 3: snacks	S 2 and 3: actual choice	S 2 and 3: 3 weeks (one measurement per week)	
	S 3: 46 students				
Loewenstein and Adler (1995)	S 1: 27 students, 42 adults	Coffee mug	Predicted and actual value (selling price)	Same day	Unawareness of endowment effect: underestimation of valuing an object after receiving it
	S 2: 106 students				
Patrick et al. (2007)	S 1: no information	S 1: film clip	Product evaluation	One measurement	Product evaluation only influenced by errors in affective forecasting when experience worse than forecasted
	S 2: 99 students	S 2: piece of music			
Phillips and Baumgartner (2002)	S 1: 53 students	Orange juice	Predicted and actual consumption emotions	Same day	Satisfaction influenced by affective predictions, experience, and disconfirmation
	S 2: 51 students				
Kahneman and Snell (1992)	Pilot S: 16 adults	Pilot S: ice cream	Predicted and actual liking over time	Eight consecutive days	Pilot S: actual decline in liking smaller than predicted decline
	Main S: 154 students	Main S: plain yogurt			Main S: increase in liking, decline in liking expected
Wang et al. (2009)	S 1: 175 students	S 1: kaleidoscope	Predicted enjoyment (in study 1 also actual enjoyment)	S 1: 1 day, 1 week	Beliefs about adaptation cued and predictions adjusted when making predictions for different points in time. Adaptation ignored when making predictions for one point in time. Purchase decisions influenced by the cued belief in adaptation
	S 2: 193 students	S 2: scenario new car		S 2: immediately, several months	
	S 3: 89 students	S 3: scenario kaleidoscope		S 3: 1 week, 1 day	
	S 4: 85 students	S 4: scenario digital camera		S 4: 1 year, 1 week, 2 weeks	
	S 5: 157 students	S 5: scenario ipod nano		S 5: 1 week, 2 years	

S study

Furthermore, emotional predictions could explain why consumers spend large sums on hedonic products and why consumers prefer well-known brands over no-name brands as they might associate longer lasting pleasure with the former. (2) The accuracy of such predictions is relevant in the post-purchase phase because mispredictions can lead to consumer dissatisfaction and reduced brand loyalty (e.g., MacInnis et al. 2005; Phillips and Baumgartner 2002). Consumer errors in predictions can become costly: Over- as well as underestimation of consumption-related emotions is unfavorable for both consumers and the economy. If consumers err in the direction of overestimating the intensity and stability (i.e., the degree of change over time) of positive consumption-related emotions, they are prone to overconsumption, i.e., spending money on products and services that do not provide as much positive emotions as expected. Not only could this money be used more efficiently, such errors also lead to disappointment and dissatisfaction and could contribute to consumer indebtedness. If consumers underestimate positive emotions, they are prone to underconsumption, i.e., missing opportunities to gain pleasure from consumption. For negative consumption-related emotions, overestimation would contribute to underconsumption and underestimation to overconsumption. Therefore, it is advisable that marketers aim at making predictions more accurate, both in the initial level of consumption-related emotions and in the change of emotions over time.

Furthermore, it is of interest for consumers and marketers to not only examine if consumers are able to predict a change in consumption-related emotions accurately but also to identify the sources of these errors in order to find ways to reduce a potential bias. Several sources of errors in predicting emotions are discussed in the literature (for reviews, see Loewenstein and Schkade 1999; MacInnis et al. 2005; Wilson and Gilbert 2003). Most explanations however focus on the emotional consequences of single events. As the present study focuses on changes of emotions, two explanations dealing with changes over time are of particular relevance. The first explanation relates to incorrect *intuitive theories* of hedonics. People hold theories about what makes them happy or unhappy and also theories about changes of emotion, of adaptation, or sensitization (Gilbert et al. 1998; Loewenstein and Schkade 1999; Wilson and Gilbert 2003). When it comes to predicting their own tastes and emotions, people often use these intuitive theories (Igou 2004). If the theories do not correspond with reality, prediction errors occur. As different theories (e.g., theory of adaptation vs theory of sensitization) lead to different predictions, depending on the kind of theory, they can produce over- as well as underestimation of future emotions (Wilson and Gilbert 2003). When examining predictions about changes in emotions, the intuitive theory of adaptation should be taken into account. There is some evidence that people tend to overestimate adaptation processes (Hoelzl et al. 2009; Kahneman and Snell 1992; Snell et al. 1995). However, Wang et al. (2009) highlight that although people may be aware of adaptation, they often do not consider this knowledge in their predictions. The second explanation argues that prediction errors occur due to the *temporal separation* between prediction and actual experience and that errors especially arise when this time period is long (MacInnis et al. 2005). When predicting emotional reactions to events, people fail to consider the temporal context of the event, and this failure is more pronounced for distant events. A larger time period between prediction and actual experience therefore can be assumed to increase the magnitude of the prediction error.

2 Perceived prediction bias after experience

For repeated experiences, it could be expected that consumers learn from their mistakes. However, prediction errors seem to persist even for frequent events. One possible explanation why people fail to learn from previous prediction errors is the *hindsight bias* (for reviews, see Christensen-Szalanski and Willham 1991; Hawkins and Hastie 1990). One form of the hindsight bias or the “I-knew-it-all-along effect” (Wood 1978) refers to the tendency of people to change their judgment of past events: Once they know the outcome of the event, they believe that they would have predicted the actual outcome. This form of hindsight bias is a stable phenomenon found in several settings related to forecasting, for instance, the probability of historical events (Fischhoff 1975) or economic developments (Hoelzl et al. 2002). Of particular relevance for the present study, the hindsight bias was also found for expectations of product performance (Zwick et al. 1995) and predictions of emotional reactions (Meyvis et al. 2007). Zwick et al. (1995) showed that experience with a product biases people’s recall of their pre-purchase expectations in the direction of perceived product performance. Furthermore, recalled predictions of product performance had more influence on consumer satisfaction than original predictions. The hindsight bias implies that people do not realize the extent of their prediction errors as they think that they had anticipated the actual outcome correctly and therefore fail to learn from their experience. Meyvis et al. (2007) showed that people only learned from previous prediction errors when they were shown their original predictions or when they were able to recall their predictions accurately. The failure to learn from previous prediction errors highlights the importance of taking into account the hindsight bias when examining prediction biases.

To summarize, the present study examines predictions, experience, and recollections of consumption-related emotions. Based on the literature on affective forecasting, it is expected that a prediction bias will occur, and consumers are incorrect in predicting the change in consumption-related emotions over time. Two possible process explanations of prediction biases dealing with changes over time are explored: (a) intuitive theories about adaptation would suggest that such beliefs can be linked to the prediction bias, and (b) temporal separation would suggest that the temporal distance between prediction and experience influences the magnitude of the prediction bias. Based on the literature on hindsight bias, it is expected that consumers misperceive the degree of their prediction bias. We study these questions in a longitudinal field study with consumers making actual purchases.

3 Method

3.1 Material and procedure

A two-wave longitudinal survey was conducted in two countries: Austria (A) and the UK. The first wave was carried out in shoe shops with consumers who had just bought a pair of shoes. Shoes were chosen as the product because they were shown to have not only utilitarian but also hedonic value (Voss et al. 2003) and are frequently bought

products. This fact is illustrated by the size of the European footwear consumer market, which mounted to almost 3 billion pairs of shoes in 2007. The apparent footwear consumption in the European Union presented a growth of approximately 30% between 2004 and 2007 (European Commission 2008).

Participants had to rate current consumption-related emotions right after the purchase ('current emotions at wave one'). They also had to predict how they would feel about their shoes at a later point in time, either 2 or 4 weeks later ('predicted emotions'). Participants were randomly assigned to either the 2-week or the 4-week condition. The time intervals of 2 and 4 weeks were chosen because they are clearly distinguishable and at the same time assessable. At the end of the questionnaire, an email or postal address was solicited, and for the second wave, which was conducted 2 (4) weeks later, a follow-up questionnaire was sent to the participants. At the second wave, participants again had to rate their current emotions about that particular pair of shoes ('current emotions at wave two') and were asked to recall their original predictions ('recalled predictions'). When answering the second questionnaire, participants had the chance to win vouchers from their shoe shop.

Consumption-related emotions Participants were asked how they felt regarding the particular pair of shoes, using selected items of the Positive and Negative Affect Scale (PANAS; Watson et al. 1988), including positive (proud, excited, enthusiastic, interested, and inspired) as well as negative emotions (nervous, afraid, guilty, distressed, and irritable), measured on a 5-point scale (ranging from 'not at all' to 'extremely'). The PANAS Scale was chosen as it is a reliable, valid, and stable measure for emotions. Stability over time is especially important for the present study as it is dealing with emotions at different points in time. There is a large degree of overlap between the ten items we selected with, e.g., the consumption emotions set from Richins (1997). Due to floor effects in all negative emotions ($M=1.02-1.23$, $SD=0.21-0.81$), analyses were restricted to positive emotions. The mean of the five items on positive emotions was used as a scale for (a) current emotions at wave one (Cronbach's $\alpha=0.81$), (b) predicted emotions at wave one (Cronbach's $\alpha=0.88$), (c) current emotions at wave two (Cronbach's $\alpha=0.86$), and (d) recalled predictions at wave two (Cronbach's $\alpha=0.90$).

Adaptation In order to analyze the role of adaptation processes, at the first wave, participants predicted adaptation by reporting to what extent they believed they would get used to the shoes in the following 2 (4) weeks (9-point scale, ranging from 'not at all' to 'completely'). At the second wave, they reported actual experienced adaptation on the same scale.

Demographic and control variables At the first wave, the demographic variables age, gender, and education were collected. Furthermore, the questionnaire of the first wave included control items, such as how many pairs of shoes participants bought per year, whether the particular purchase was planned or unplanned, the price of the shoes they had purchased, and how they were feeling on the day of the survey (5-point scale, ranging from 'very good' to 'very bad'). At the second wave, they again reported how they felt at the day of the survey.

3.2 Participants

At the first wave, 179 participants were recruited; 86 participants answered the follow-up questionnaire. From these, 39 were in the 2-week and 47 in the 4-week condition. Sixty-five participants were female and 21, male. Age ranged from 15 to 76 with a median of 30.5 years. More than half of the participants (48) had a university degree.

Two of the demographic or control variables were found to differ between experimental conditions or countries: Austrian participants ($Md=26$, $M=29.15$, $SD=9.96$) were younger than UK participants ($Md=44$, $M=43.49$, $SD=16.90$), Mann–Whitney $Z=-3.67$, $p<.01$. Participants of the 2-week condition felt better on the day of wave two ($Md=4.00$, $M=4.15$, $SD=0.85$) than participants of the 4-week condition ($Md=4.00$, $M=3.77$, $SD=0.94$), Mann–Whitney $Z=-1.99$, $p=.049$.

A non-responder analysis showed no significant differences between participants who did and did not respond at wave two in the relevant variables such as current emotions, predicted emotions, demographic, and control variables as measured at wave one.

4 Results

To analyze the prediction bias and the hindsight bias, all four ratings of emotions were compared, including the two experimental conditions (2 vs 4 weeks) and the two countries (Austria vs UK). A 4 (time: current emotions wave one, predicted emotions, current emotions wave two, recalled predictions, within subjects) \times 2 (group: 2 vs 4 weeks, between subjects) \times 2 (country: A vs UK, between subjects) analysis of variance¹ revealed a significant effect of time $F(3, 246)=9.97$, $p<.01$. Neither the group effect, $F(1, 82)=3.20$, $p=.08$, nor the country effect, $F(1, 82)=0.43$, $p=.51$, nor any of the interactions were significant (group \times country: $F(1, 82)=0.03$, $p=.86$; group \times time: $F(3, 246)=0.17$, $p=.91$; country \times time: $F(3, 246)=0.52$, $p=.67$; group \times country \times time: $F(3, 246)=0.49$, $p=.69$). Descriptive statistics are shown in Table 2; Fig. 1 illustrates the pattern. Additional analyses showed that this pattern remains unchanged considering the control variables price of the shoes, frequency of buying shoes, and planning as between-subject factors. Apart from the significant time effect, $F(3, 234)=10.89$, $p<.01$, only the main effect of frequency of buying shoes reached significance, $F(1, 78)=6.68$, $p=.01$. Participants who frequently buy shoes (more than three pairs per year) generally indicated more positive consumption-related emotions than participants who buy shoes less frequently (one to three pairs per year). However, the non-significant interactions indicate that the differences between the four ratings of emotions remain unchanged

¹ An ANCOVA was also conducted, including the variables age and general feeling at wave two as covariates, as these variables were found to differ between conditions or countries. The analysis revealed the same results with a significant time effect, $F(3, 246)=9.97$, $p<.01$, a non-significant group effect, $F(1, 80)=2.37$, $p=.13$, a non-significant country effect, $F(1, 80)=0.93$, $p=.34$, and non-significant interactions (group \times country: $F(1, 80)=0.03$, $p=.86$; group \times time: $F(3, 246)=0.17$, $p=.91$; country \times time: $F(3, 246)=0.52$, $p=.67$; group \times country \times time: $F(3, 246)=0.49$, $p=.69$). Neither age ($\beta=-0.11$, $p=.38$) nor general feeling at wave two ($\beta=0.09$, $p=.41$) had a significant effect.

for frequent versus infrequent shoe buying, for cheap versus expensive shoes, and planned versus unplanned purchases.

4.1 Prediction bias about change in emotions

To analyze the prediction bias, planned contrasts between current emotions at wave one and predictions and current emotions at wave two were conducted. Analyses showed a significant difference between current emotions at wave one ($M=2.80$) and predictions ($M=2.32$), $F(1, 82)=34.75$, $p<.01$. The effect size for this difference is $d=0.49$ (Dunlap et al. 1996, Formula 3), which can be considered a medium effect (Cohen 1992). Participants therefore predicted that their emotions would decline. Current emotions indeed declined from wave one ($M=2.80$) to wave two ($M=2.56$), $F(1, 82)=4.98$, $p=.03$, $d=.25$. However, predictions ($M=2.32$) were even lower than current emotions at wave two ($M=2.56$), $F(1, 82)=5.37$, $p=.02$, $d=0.24$. This effect, although small, shows that a prediction bias occurred; participants overestimated the decrease of positive emotions over time and therefore underestimated emotions at wave two². All ratings of emotions were significantly correlated, with the correlation between current emotions at wave one and predictions ($r=.73$) being higher than between current emotions at wave one and current emotions at wave two ($r=.55$) and between predictions and current emotions at wave two ($r=.49$).

In the next step, it was analyzed whether the prediction of adaptation plays a role in the predicted decline of emotions. The difference between current emotions at wave one and predictions was calculated as an index for the predicted change in emotions ($M=-0.40$, $SD=0.67$), with negative values indicating lower predictions than current emotions, i.e., a predicted decline of emotions. This predicted change in emotions was significantly correlated with the prediction of adaptation ($r=-.32$, $p<.01$). Participants predicting a decline of emotions also predicted that they would get used to the shoes strongly.

In addition to the relevance of predicted adaptation for the predicted decline of emotions, it was analyzed whether mispredictions of adaptation can be linked to mispredictions of consumption-related emotions. The difference between predictions and current emotions at wave two was calculated as an index for the prediction bias ($M=0.24$, $SD=0.95$), with positive values indicating higher current emotions than prediction, i.e., an underestimation of emotions. Similarly, the difference between predicted adaptation and experienced adaptation was calculated as an index for the misprediction of adaptation ($M=0.45$, $SD=2.30$), with positive values indicating higher experienced adaptation than predicted adaptation, i.e., an underestimation of adaptation. The prediction bias was significantly correlated with the misprediction of adaptation ($r=-.28$, $p=.01$). Participants underestimating emotions at wave two overestimated how strongly they would get used to the shoes, and participants overestimating emotions at wave two underestimated how strongly they would get used to the shoes. Although the predicted level of adaptation ($M=2.86$, $SD=2.34$) was not significantly different from actual experienced adaptation, ($M=3.22$, $SD=2.58$), $t(85)=-1.38$, $p=.17$, these correlations support the theorized role of adaptation for consumption-related emotions.

² This difference between predictions and current emotions at wave two also remained significant accounting for current emotions at wave one as covariate, $F(1, 85)=5.58$, $p=.02$.

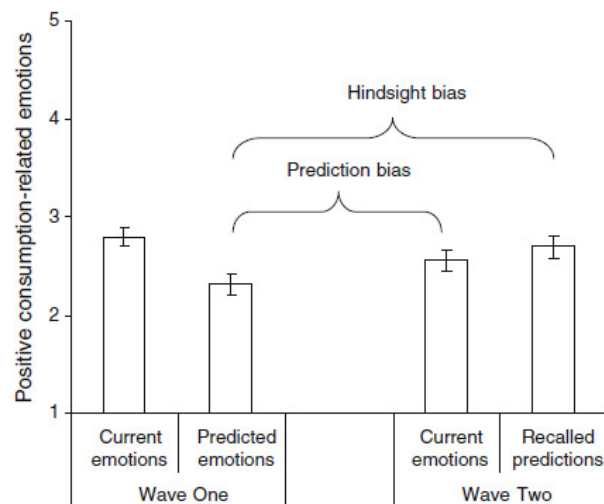
Table 2 Current emotions, predictions, and recalled predictions, by group and country

Country	Group	Wave one		Wave two	
		Current emotions (<i>M</i> (<i>SD</i>))	Predicted emotions (<i>M</i> (<i>SD</i>))	Current emotions (<i>M</i> (<i>SD</i>))	Recalled predictions (<i>M</i> (<i>SD</i>))
A	2 weeks (<i>n</i> =17)	2.97 (0.88)	2.44 (0.91)	2.68 (1.05)	2.82 (1.15)
	4 weeks (<i>n</i> =24)	2.59 (0.75)	1.98 (0.88)	2.40 (0.77)	2.51 (0.86)
UK	2 weeks (<i>n</i> =22)	2.99 (0.86)	2.57 (1.15)	2.85 (1.02)	2.85 (1.05)
	4 weeks (<i>n</i> =23)	2.70 (1.06)	2.36 (1.06)	2.37 (1.08)	2.66 (1.12)
Total	Total (<i>n</i> =86)	2.80 (0.89)	2.32 (1.02)	2.56 (0.98)	2.70 (1.03)

4.2 Perceived prediction after experience

Further planned contrasts showed that not only a prediction bias but also a hindsight bias occurred. Recalled predictions ($M=2.70$) were significantly higher than original predictions ($M=2.32$), $F(1, 82)=14.41$, $p<.01$, $d=0.37$. Recalled predictions ($M=2.70$) were even higher than current emotions at wave two ($M=2.56$), $F(1, 82)=5.28$, $p=.03$, $d=0.13$. These results indicate that participants were not able to recall predictions correctly. They believed that they overestimated emotions, therefore, perceived a small prediction bias; however, the actual prediction bias was larger and in the opposite direction. Again, all ratings of emotions were significantly correlated; recalled predictions correlated higher with current emotions at wave two ($r=.86$) than with current emotions at wave one ($r=.60$) and with predictions ($r=.61$). A regression analysis showed that recalled predictions were not only influenced by original predictions ($\beta=0.21$, $p<.01$), but also, and even stronger, by current experienced emotions at wave two ($\beta=0.74$, $p<.01$), $R^2=.76$, $p<.01$.

Fig. 1 Current emotions, predictions, and recalled predictions (total). Error bars indicate standard errors



To summarize, a prediction bias as well as a hindsight bias for consumption-related emotions were found. Participants predicted a decrease in positive emotions over time. Current experienced emotions at wave two were indeed lower than at wave one; however, participants overestimated this decrease. Thus, participants were too pessimistic, predicting lower positive emotions than they actually experienced (prediction bias about change in emotions). Results indicate that adaptation processes play a role in predicting consumption-related emotions. Moreover, recalled predictions did differ from original predictions and were more strongly influenced by actual experienced emotions at wave two than by original predictions. Participants perceived a prediction bias in the opposite direction than it actually occurred (hindsight bias). No differences between the 2 and the 4-week conditions or the two countries could be found.

5 Discussion

Based upon previous literature on affective forecasting, a prediction bias was expected, and results confirmed that consumers were incorrect in predicting the change in consumption-related emotions. Participants who had just bought a pair of shoes overestimated the decrease of positive emotions towards their shoes over time; they therefore underestimated future positive emotions. These results are consistent with the general conclusion of Kahneman and Snell (1992) that people are not able to predict a change in taste. Results indicate that the inability to predict changes not only applies to taste change but also to the change in consumption-related emotions. In addition, it also applies to durable goods—where the same product is used repeatedly over a longer time span—and not only to products like food that are consumed immediately. Furthermore, it also applies to consumers making real purchases, even though it could be expected that the involvement and motivation to predict correctly is higher with real purchases than in a laboratory setting. To summarize, consumers showed a bias in the prediction of change: although they were able to predict the direction of change, they mispredicted its magnitude. However, even such a gradual error leads consumers to mispredict the overall pleasure derived from consumption over a product's lifetime and may contribute to suboptimal decisions.

One plausible explanation for this prediction bias about change in emotions is an incorrect intuitive theory of adaptation (Gilbert et al. 1998; Loewenstein and Schkade 1999; Wilson and Gilbert 2003). It therefore was examined if intuitive theories about adaptation can be linked to the prediction bias. Results showed that adaptation processes play a role in the predicted decline of emotions and the prediction bias. Participants predicting that they would get used to the shoes in a short period of time also predicted a decline of emotions. Participants misestimating how strongly they would get used to the shoes also misestimated emotions at wave two. These results support the assumption that consumers are holding an intuitive theory of adaptation. They believe that they will get used to the shoes and, therefore, positive emotions will decline over time. However, if consumers overestimate this adaptation, they overestimate the decrease of emotions and consequently underestimate future positive emotions.

The second explanation was that the temporal distance between prediction and experience influences the magnitude of the prediction bias. No support for this argument of temporal separation (MacInnis et al. 2005) could be found in the present study. A plausible explanation seems that the intuitive theory of adaptation is applied on a general level and, therefore, consumers do not differentiate between different points in time. They believe that consumption-related emotions will generally decrease over time but can not exactly estimate this decrease. Therefore, the difference between 2 and 4 weeks might have been too short to show such an effect.

Finally, it was expected that consumers would misremember original predictions (hindsight bias, e.g., Fischhoff 1975). Results showed that indeed a hindsight bias for consumption-related emotions occurred. Recalled predictions were different from original predictions and were more strongly influenced by current experienced emotions at wave two than by original predictions. Participants even perceived a prediction bias in the opposite direction than it actually occurred. Due to the hindsight bias, participants do not realize the prediction bias and are not able to adjust their intuitive theories. This might be a reason why even for frequently bought products—like shoes—no learning can take place (Meyvis et al. 2007).

Some limitations need to be considered. One could argue that shoes can represent completely different meanings and goals for consumers. Some types of shoes have more hedonic value than other types, and for some consumers, shoes in general have more hedonic value than for other consumers. According to Pham (1998), the goal of consumption determines the relative importance of affective versus cognitive considerations in the evaluation of products. Two types of motives can be distinguished in this sense: consummatory or hedonic motives are the basis of consumption behaviors that are intrinsically rewarding, whereas instrumental motives underlie consumption behaviors that are rarely rewarding in themselves and are undertaken to achieve some other goal. In the case of consummatory motives, affective considerations should be more important determinants of behavior and hence perceived as more relevant (as opposed to cognitive considerations) than in the case of instrumental motives, when attention is turned to the product and its performance, generating a more rational, reasoned assessment of performance (Patrick et al. 2007). Thus, affective forecasting is especially relevant when the consumption goal is hedonic, as the goal focuses attention on the self and on feelings, as opposed to the product and its attributes. It would, therefore, be interesting for further studies to take into account differences between participants regarding their consumption goal. Furthermore, our study focuses on one specific product. Further research should examine if the intuitive theory of adaptation and the resulting prediction bias are general phenomena in the consumer context and can be applied to other products. At least the fact that no differences between Austria and the UK were found is an indication that these phenomena are consistent across countries.

The findings suggest several theoretical implications. At first glance, the present results seem inconsistent with the stream of research showing that people tend to systematically overestimate future emotions (impact bias, e.g., Gilbert et al. 1998). As outlined above, in the consumer context, another focus is prevalent. First, the impact bias studies mostly focus on general happiness after an event, whereas in the consumer context, more specific emotions regarding products are central. Second,

the impact bias studies focus on predictions of emotional reactions to a single event, and not on events that extend over time (e.g., durable goods) where the study of a change in emotions is central. Wilson and Gilbert (2003) discuss intuitive theories as one possible cause for the impact bias but argue that such theories would not lead to a systematic overestimation because they are too diverse and differ from individual to individual. In the consumer context, however, not only the focus of research is different to some extent but also it can be assumed that intuitive theories are systematic—brought about by mass media and by advertising. For example, fashion is one domain where a rapid change in taste has become the rule, suggesting that consumers need new products within a few months. Electronic products like mobile phones similarly have a very short product cycle. In such a culture of consumption, it can be assumed that the prevalent intuitive theory among consumers is one of a strong adaptation to products. Consequently, consumers predict that positive emotions about new products decline quickly. These considerations suggest that theoretical explanations about affective forecasting of consumption-related emotions would benefit from the explicit inclusion of two aspects: the specific kind of intuitive theory that consumers hold and the conditions under which these theories are applied. First, the specific intuitive theory needs to be explored in detail. Existing studies show that people believe in adaption in some domains like noise (Snell et al. 1995), but not in others like disabilities (Ubel et al. 2005). Second, intuitive theories can be more influential in certain situations. For example, Wang et al. (2009) showed that by asking for two predictions instead of one, beliefs about adaptation can be cued and Igou (2004) showed that by priming stability or change, predictions about the time course of emotions can be influenced. Other factors that influence the salience of intuitive theories and their application to predictions need to be explored, for example, involvement or consumption goals.

The results suggest also practical implications for marketers and consumers. First, the role of intuitive theories for consumers' predictions and decisions is relevant for marketers. Because context information can activate certain intuitive theories (Igou 2004), marketing might be able to influence intuitive theories of consumers to make them more accurate. Advertising or specific sale strategies can communicate the intuitive theory of long-lasting emotions associated with a product. In the present study, the intuitive theory of adaptation led consumers to overestimate the decrease of consumption-related emotions; a correction of the intuitive theory would influence consumer decisions. Consumers might for instance be willing to spend more money on products if they believe that positive consumption-related emotions do not fade away quickly. Furthermore, a correction of the intuitive theory would make predictions more accurate, which in turn can enhance consumer satisfaction (Patrick et al. 2007). Second, it is also in the interest of consumers to develop correct intuitive theories in order to make optimal decisions. Intuitive theories do not only influence predictions (Igou 2004) but also recall (Ross 1989). Consumers may, consequently, not only overestimate the decrease of consumption-related emotions in predictions but also exaggerate such a decrease in their recollections. If they believed that the positive emotions associated with the product have decreased over time, they would be more willing to invest in a new product to compensate for the decreased emotions. A correction of the intuitive theory would therefore prevent unnecessary purchases. Advising consumers to correct their intuitive theories would be necessary,

as the hindsight bias prevents consumers from correcting their intuitive theories themselves. This approach of advising consumers in order to avoid decision biases and improve their decision-making is in line with suggestions of Ratner et al. (2008).

To conclude, the present study contributes to the literature on affective forecasting and hindsight bias by focusing on the change in consumption-related emotions of consumers in a field setting. It shows that predictions about change in consumption-related emotions might be incorrect and that an intuitive theory of adaptation is related to mispredictions. The study also points out the relevance of the hindsight bias which hinders consumers from remembering predictions correctly. Therefore, consumers are not able to adjust their intuitive theories; the theories persist, and consumers do not learn from previous prediction errors.

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Article 2

Hoelzl, E., Pollai, M., & Kastner, H. (revised and resubmitted). Hedonic evaluations of cars: Effects of payment mode on prediction and experience. *Psychology & Marketing*.

Hedonic evaluations of cars: Effects of payment mode on prediction and experience

Abstract: The paper examines the influence of different payment modes on hedonic post-purchase product evaluations over time. Two theoretical frameworks – mental accounting and cognitive dissonance – lead to contradicting hypotheses regarding this influence of payment modes. In addition to experience, it is examined if prospective consumers are able to predict these post-purchase evaluations and the influence of payment modes over time. In an online survey, hedonic evaluations of 346 car owners in three ownership phases (one, two and three years after purchase) were measured and compared to predictions of 75 prospective car owners. Two different payment modes (down payment vs. installments) were distinguished. Results showed an interaction between payment mode and the hedonic evaluation of the car over time. In the first and third year, the evaluations by both groups were similar; in the second year, the installments group rated their cars more highly than the down payment group. Neither of the two theoretical frameworks – mental accounting or cognitive dissonance – is sufficient to explain the observed relation between payment mode and evaluation over time; it is therefore suggested to expand mental accounting theory with cognitive dissonance elements. Regarding predictions, prospective car owners did not foresee the influence of payment modes on evaluations over time. Mispredictions are of practical relevance because they can influence consumer decisions.

Keywords: payment method, credit, mental accounting, cognitive dissonance, affective forecasting, prediction errors

Introduction

Consumer credit use has grown considerably (e.g. Brown, Taylor, & Wheatley Price, 2005; Maki, 2000) and has become more acceptable in Western societies; for example, 82% of US citizens found it acceptable to use credit for the purchase of cars (Engel, Blackwell, & Miniard, 1993). In fact, cars are one of the most common consumer goods financed by credit; in 2001, 80% of recent model-year cars (two years or less) in the US were financed by loan or leasing (Aizcorbe, Starr, & Hickman, 2003). Comparisons on households' finances demonstrate that households with leased cars or car loans have more trouble getting credit, and are more likely to have deferred debt payments than households without car financing (Aizcorbe et al., 2003). Several researchers (e.g. DeVaney & Lytton, 1995; O'Neill, 1995) have pointed out that debt not only implies direct monetary costs but also indirect emotional and psychological costs. In fact, empirical evidence suggests that debt is associated with lower levels of psychological well-being (e.g. Brown et al., 2005). Kirchler (2003) makes the assumption that credit users might not be able to predict accurately the decrease in experienced pleasure derived from the financed good. The unsatisfactory combination of decreasing pleasure and ongoing payments might, in the long run, lead to further borrowing and debt problems.

Consumer products can be financed in different ways; it is, therefore, of special interest whether the payment mode has an influence on consumption experiences. Two theoretical frameworks – mental accounting and cognitive dissonance – lead to opposing hypotheses regarding the effects of payment mode on post-purchase evaluations. Furthermore it is relevant for consumers that they are aware of this potential influence of payment modes on their consumption experiences. The ability to predict consumption experiences correctly is crucial because predictions of hedonic

experiences influence consumer decision making (e.g. Mellers, Schwartz, & Ritov, 1999); however, hedonic predictions are often incorrect (e.g. Loewenstein & Schkade, 1999; Wilson & Gilbert, 2003). The current study therefore focuses on hedonic consumption experiences, i.e. those facets of product usage that relate to the emotive aspects (e.g. Hirschman & Holbrook, 1982), as opposed to utilitarian facets (e.g. Voss, Spangenberg, & Grohmann, 2003). In order to increase our understanding of how consumers evaluate the payment mode and the financed good, credit use should be viewed as a long-term process (Kamleitner & Kirchler, 2007). The current paper therefore examines whether hedonic evaluations of cars by their owners differ according to duration of ownership and whether the payment mode (down payment vs. installments) has an impact on these evaluations. A further goal of the present research is to examine predicted hedonic evaluations by people who are planning to buy a car, and to compare these predictions with actual evaluations by car owners.

Effects of payment mode on post-purchase evaluations

With regard to the potential influence of different payment modes on the evaluation of a good, two frameworks allow contradicting predictions about this issue: mental accounting (Prelec & Loewenstein, 1998; Thaler, 1985, 1999) and the theory of cognitive dissonance (Brehm, 2007; Festinger, 1957).

Mental accounting. Mental accounting (Thaler, 1985, 1999) refers to cognitive operations related to financial transactions. On entering a consumer transaction, an individual opens a mental account, creating a psychological link between the costs and benefits of that particular transaction (Gourville & Soman, 1998). Prelec and Loewenstein's (1998) theory of double-entry mental accounting postulates that mental accounts are currently evaluated. The theory assumes people to experience an "immediate" pain of paying as well as pleasure derived from consumption, and assumes

a reciprocal interaction where consumption evokes thoughts of payments and vice versa, which is referred to as coupling. The subjective utility of a consumption episode is attenuated by its imputed costs, and the pain of paying is buffered by the pleasure of consumption. The degree of coupling varies across people (Prelec & Loewenstein, 1998) and depends on situational variables, such as the payment method used (Siemens, 2007; Soman, 2001, 2003).

The theory of double-entry mental accounting (Prelec & Loewenstein, 1998) assumes that past payments are largely written off (prospective accounting). Hence, it is hypothesized that prepaid consumption can be enjoyed as though it were free. For cases with more than one payment or consumption episode, residual payments are assumed to be prorated to residual consumption, and vice versa. Consequently, installment financing should reduce the experienced benefit of consumption because future payments remain fully recognized until they are settled and are allocated to future consumption, which, in turn, attenuates the subjective utility of the purchased product. Thus, the purchase of a durable good by installment should bring about a reduction of the experienced utility of the product, whereas a prepaid purchase can be enjoyed as though it were free because the historic costs should be largely written off when consumption takes place. However, it is important to note that these hypotheses, as Prelec and Loewenstein (1998) also highlight in their paper, generally refer to anticipated experiences, and that experienced utility may deviate from predicted utility in systematic ways.

Cognitive dissonance. The theory of cognitive dissonance (Festinger, 1957) postulates that simultaneously existing inconsistent, i.e. contradictory, cognitions (e.g. “I’d like to buy a sports car” and “Sports cars are expensive and impractical”) cause psychological discomfort, termed dissonance. It is assumed that people are motivated to

reduce dissonance and to achieve consonance by either eliminating an inconsistent element (e.g. by buying an inexpensive station wagon), changing cognitive elements in a way that dissonant relations become consonant (e.g. “Considering the equipment, this sports car isn’t that expensive”), or adding new consonant elements (e.g. “With the excellent brakes on the sports car, driving is much safer”). The occurrence of such cognitive phenomena has been thoroughly investigated. More recent developments on dissonance theory (Cooper & Fazio, 1984; Steele, 1988; Steele & Liu, 1983; Steele, Spencer, & Lynch, 1993; Stone & Cooper, 2001) have mainly discussed the role of the self in cognitive dissonance, but maintained the basic premises. Two processes related to cognitive dissonance that are of special interest in the present paper are post-decision dissonance and effort justification. Post-decision dissonance arises after making a choice as the negative consequences of the chosen alternative have to be accepted and the positive consequences of the rejected alternative must be abandoned. This fact causes dissonance and, accordingly, the tendency to reduce it. In a study by Brehm (1956), participants rated eight products and made a choice between two of them. Having been endowed with their chosen product, they evaluated it significantly better, but – importantly – they also rated the rejected item significantly worse than before their choice. Effort justification was demonstrated in a classical study by Aronson and Mills (1959), where students underwent a qualifying examination allowing them to join a group. Those who had to pass a very unpleasant task subsequently valued a boring discussion of their group more positively than those with a less painful initiation.

The theory of cognitive dissonance has attracted considerable interest in consumer behavior research. For instance, satisfaction of consumers who had recently bought or planned to buy major household appliances has been measured (Westbrook & Newman, 1978). Recent first-time buyers demonstrated very low dissatisfaction,

compared to prospective first-time buyers, a result Westbrook and Newman (1978) interpreted as a consequence of post-purchase dissonance reduction. Owners of new cars – significantly more so than owners of old cars – sought out information supporting their decision (i.e. consonant information) in order to reduce the dissonance resulting from choice (Ehrlich, Guttman, Schönbach, & Mills, 1957). Koller and Salzberger (2007) examined cognitive dissonance effects with regard to booking a package holiday, prior to the decision, after the decision, during the holiday, and after the holiday, and found that the concept of cognitive dissonance was applicable in all phases. The structure, however, was more stable in the three phases after the decision compared to the pre-decision phase.

When exploring the effect of payment modes on the hedonic evaluation of the purchase, post-decision dissonance and effort justification need to be considered. Given that payment and consumption are mentally linked, and that payments are experienced as “painful”, people should tend to justify the effort. Thus, they should tend to enhance the product after the purchase according to the perceived pain of paying. Assuming that past-payment by installment is more painful than prepayment, the former should result in more dissonance, and consequently, the product should be valued more highly by people using payment by installment compared with those using down payment.

Prediction of post-purchase evaluations

Predictions of post-purchase evaluations are relevant for consumer choice. Decisions are often based on predictions of the hedonic post-purchase evaluations of future events (Hetts, Boninger, Armor, Gleicher, & Nathanson, 2000; Mellers et al., 1999; Shiv & Huber, 2000). A variety of studies, however, show that predicted emotions differ from subsequent actual experienced emotions (e.g. Gilbert, Pinel, Wilson, Blumberg, & Wheatley, 1998; Kahneman & Snell, 1992; Loewenstein & Adler,

1995; Loewenstein & Schkade, 1999; Simonson, 1990; Wilson & Gilbert, 2003). One of the central findings in the area of affective forecasting (i.e. predicted emotions) is that people tend to overestimate the impact that future events will have on the intensity and duration of their emotional reactions (Wilson & Gilbert, 2003), a phenomenon that is known as impact bias (Gilbert, Driver-Linn, & Wilson, 2002). One major process responsible for the impact bias is sensemaking, which refers to the human ability to adapt to changes by explaining events. This ability lowers the intensity of emotional reactions to the events, but is systematically underestimated (e.g. Wilson & Gilbert, 2003). People make sense of positive as well as negative events; therefore, they underestimate both the fading of delight about positive incidences as well as the adaptation to negative events. The former is called ordinization neglect (Wilson & Gilbert, 2003) and the latter immune neglect (Gilbert et al., 1998). The label 'immune neglect' refers to the assumption that people are not able to anticipate their ability to ameliorate psychologically the impact of negative events, i.e. they are not aware of their psychological immune system. As examples of psychological defense mechanisms, Wilson and Gilbert (2003) cited, among others, dissonance reduction.

Empirical evidence demonstrates that people are not able to predict cognitive dissonance effects (Gilbert & Ebert, 2002; Snell, Gibbs, & Varey, 1995). Snell et al. (1995) suggest that this unawareness of cognitive dissonance effects can have implications for consumer choice, particularly when a product is consumed over time. The accurate knowledge about factors that influence the hedonic value of consumer goods is essential for consumers to choose appropriately. Loewenstein and Schkade (1999) also note that concerning consumer purchases, errors in predicting feelings may lead to consumer dissatisfaction.

To summarize, the first research question of the present study is whether the payment mode (down payment versus installments) has an effect on hedonic post-purchase evaluations. Existing theories lead to opposing hypotheses: (a) Findings on mental accounting suggest that products financed through down payment are evaluated more positively, especially in the long run. (b) Findings on cognitive dissonance, on the other hand, suggest that the ongoing loan payments would make dissonance reduction more necessary and therefore products financed through installments are evaluated more positively than products financed by down payment. The second research question is whether consumers are able to predict hedonic post-purchase evaluations and the possible effects payment modes have on their evaluations. Findings on affective forecasting and especially on the underprediction of dissonance reduction suggest that consumers mispredict post-purchase evaluations and the effects of payment modes. The present study examines these research questions by measuring hedonic evaluations of a product over time and comparing them with predictions, focusing on effects of payment modes.

Method

Material and Procedure

Data were collected in an online survey. Participants were people who either planned to buy a car or who already owned a car. Two payment modes were compared: down payment and payment by installments. Participants were recruited via web pages of automobile clubs and online car forums in [countries of study]. First, participants were asked whether they were planning to buy a car within the next 12 months or whether they had bought a car in the course of the last three years. Depending on their answers they were transferred to the respective questionnaire. As an incentive

participants had the chance to win an MP3 player worth € 300. The average time to complete the questionnaire was 10 minutes.

Ownership status: Participants who were planning to buy a car within the next 12 months were assigned to the group of planners. Participants who had bought a car in the course of the last three years were assigned to the group of owners.

Ownership phase: The group of owners was again divided into three groups according to duration of ownership: (a) year 1 participants had owned their car for up to 12 months; (b) year 2 participants between 13 and 24 months; and (c) year 3 participants between 25 and 36 months. Planners had to make predictions for these three phases.

Payment mode: Participants who had financed their car by down payment (or were planning to do so) were distinguished from participants who had financed their car by installments, i.e. by loan or leasing (or were planning to do so). Participants who had financed their car by installments were additionally assigned to three groups where focus of attention was manipulated: In the first group no focus was set, in the second and third group the focus of attention was set either on the car or the installments by asking several nonevaluative questions regarding the car (e.g., color and brand) or the installments (e.g., banking institution). It was expected that the focus of attention could influence evaluations; however, this manipulation did not show any effects and therefore the three groups of car owners using installments were pooled together for all analyses.

Hedonic evaluation of the car: Owners had to make current hedonic evaluations; planners had to predict how they will presumably evaluate their car in 12 months, in 24 months and in 36 months. All evaluations were based on three bipolar attributes (extremely pleasant–extremely unpleasant, extremely joyful–extremely joyless, and

extremely positive–extremely negative; 11-point scale). The mean of the three items was used as an index for the owners’ current hedonic evaluations of the car (Cronbach’s α between .87 and .93 for the three phases), and for the planners’ predicted hedonic evaluations of the car (Cronbach’s α between .75 and .91).

To be able to control for differences in the sample structure, the variables gender, age, disposable household income after fixed costs, and price of the car were collected. The degree of coupling was examined by asking participants to what extent they experience the car and the payment as belonging together (not at all – completely, 11-point scale). Participants were also asked to evaluate the payment mode, using the same items as for the car (Cronbach’s α between .88 and .94 for the three phases). In addition, attitude towards loans was examined by five questions (e.g., “Loans make life easier”; agree not at all–agree completely; 11-point scale, Cronbach’s $\alpha = .79$).

Participants

A total of 421 participants were recruited, of whom 288 were male and 131 female; two participants did not indicate their gender. Age ranged from 18 to 75 with a median of 36 years ($M = 38.44$, $SD = 12.08$). The median disposable household income after fixed costs was in the range of € 751 to € 1000 per month. The median price of the car was in the range of € 15001 to € 20000. Seventy-five participants were planning to buy a car within the next 12 months. One hundred and twenty-two participants had owned their car for up to 12 months, 114 between 13 and 24 months, and 110 between 25 and 36 months.

Groups did not differ in gender, income, or price of the car; they only differed in age⁵. Owners ($Md = 37$, $M = 39.11$, $SD = 12.13$) were older than planners ($Md = 32.50$, $M = 35.35$, $SD = 11.41$), Mann–Whitney $Z = -2.44$, $p = .02$.

Results

Preliminary analyses: Coupling and evaluation of the payment mode

The presented considerations of the effects of payment mode on hedonic evaluations of the product through the mechanisms of mental accounting and cognitive dissonance are based on two assumptions: First, it is assumed that payment and consumption are mentally linked and second, that payment by installments constitutes a constant pain of paying. It was therefore examined if these assumptions are justified. First, car owners were asked to what extent they experience the car and the payment belonging together. Mean values show that the assumption of a mental link between car and payment is justified (Year 1: $M = 7.76$, $SD = 2.55$; Year 2: $M = 7.40$, $SD = 2.74$; Year 3: $M = 7.97$, $SD = 2.65$; 11-point scale). Second, car owners were asked to evaluate the payment mode and it was examined whether payment by installments was indeed evaluated worse than down payment. Analyses demonstrated that in all phases, owners in the installments group evaluated the payment worse than owners in the down payment group (Year 1: $M_{DP} = 8.86$, $M_I = 7.73$, $t(120) = 2.99$, $p < .01$; Year 2: $M_{DP} = 8.99$, $M_I = 7.70$, $t(112) = 3.43$, $p < .01$; Year 3: $M_{DP} = 8.41$, $M_I = 6.47$, $t(108) = 4.40$, $p < .01$). Regarding changes over time, payment by installment was evaluated worse in the third year ($M = 6.47$) than in the first ($M = 7.73$, $t(140) = 3.42$, $p < .01$) and second years ($M = 7.70$, $t(137) = 3.39$, $p < .01$).

⁵ To consider potential effects of differences in the sample structure, all following analyses were rerun including the covariates gender, age, income, price of the car, and attitude towards loans. None of the covariates had an effect on the results presented below.

Effects of payment mode on post-purchase evaluations

To examine differences in current hedonic evaluations of the car by owners, a 2 (payment mode: down payment vs. installments) \times 3 (ownership phase: year 1, year 2, year 3, between-subjects) ANOVA was conducted. It showed a significant main effect of ownership phase, $F(2,340) = 11.00, p < .01$, and a significant interaction, $F(2,340) = 5.56, p < .01$. The main effect of payment mode was not significant, $F(1,340) = 1.16, p = .28$. Details are shown in the upper part of Table 1; the solid lines in Figure 1 illustrate the pattern. The significant interaction indicates a different course of hedonic evaluation over the duration of the ownership, depending on the payment mode. Participants who had financed their car by down payment evaluated their car lower in the second year ($M = 8.45$) than in the first year ($M = 9.62$), $t(70.1) = 2.82, p < .01$; however, the evaluation remained at the same level in the third year ($M = 8.72$), $t(83) = -0.58, p = .57$. For participants who had financed their car by installments, the pattern was reversed. The evaluations in the first ($M = 9.58$) and second year ($M = 9.54$) did not differ, $t(141) = 0.14, p = .88$, whereas the evaluation declined in the third year ($M = 8.29$), $t(137) = 4.43, p < .01$. Thus, depending on the ownership phase, differences between the two payment modes can be observed in the hedonic evaluation of the car. In the first year the evaluations by both groups were similar ($M = 9.62$ vs. $M = 9.58$), $t(120) = 0.16, p = .87$, whereas in the second year the installments group ($M = 9.54$) evaluated their cars more highly than the down payment group ($M = 8.45$), $t(58.26) = -2.82, p = .01$. In contrast, in the third year, the down payment group ($M = 8.72$) evaluated their cars slightly higher than the installments group ($M = 8.29$); however, the difference was not statistically significant $t(108) = 1.12, p = .27$.

Table 1 about here

Figure 1 about here

Prediction of post-purchase evaluations

To examine how planners predicted hedonic evaluations of the car over time, a 2 (intended payment mode: down payment vs. installments) \times 3 (ownership phase: year 1, year 2, year 3; within-subjects) ANOVA was conducted. It showed a significant main effect of ownership phase, $F(2,146) = 6.84, p < .01$. The main effect of payment mode, $F(1,73) = 0.17, p = .68$, and the interaction were not significant, $F(2,146) = 0.79, p = .45$. Details are shown in the lower part of Table 1; the dashed lines in Figure 1 illustrate the pattern. These results indicate a general decline in predicted hedonic evaluations, with no difference between the two payment modes. Pooling the two payment modes, predictions for year 1 ($M = 8.73$) were higher than for year 2 ($M = 8.31$), $t(74) = 2.60, p = .01$ and year 3 ($M = 8.12$), $t(74) = 3.61, p < .01$. These predictions were linear: A quadratic polynomial contrast was not significant, $p = .44$. Irrespective of the intended payment mode, participants expected a linear decline in their hedonic evaluations of the car over time.

To summarize, both of the hypothesized relations between payment mode and evaluation of the product seem to hold to some degree, but also fail to account for the overall pattern of results: Owners' hedonic evaluations of the car declined from the first year to the third year, but differently in the two payment modes. In the down payment group, evaluations declined after the first year and remained constant after the second year. In the installments group, evaluations remained constant after the first year, but declined after the second year. Thus, in the first year, the evaluations by both groups were similar; in the second year, participants who financed their car by installments evaluated their cars significantly more positively than participants who financed their cars by down payment; and in the third year, the pattern was reversed, however, the difference in the third year was not statistically significant. With regard to planners'

predictions, no differences between the two payment modes could be found, and participants predicted a linear decline. Thus, the time-dependent fluctuations of owners' ratings depending on the selected payment mode were not foreseen by planners.

Discussion

Effects of payment mode on post-purchase evaluations

The results demonstrated a relationship between payment mode and the hedonic evaluation of the car. In the second year of ownership, consumers who used installments to finance their car evaluated it more positively than consumers who used down payment. This difference cannot be explained by external factors, such as the price of the car or demographic variables. However, participants in this study perceived payment by installments as more painful than down payment, and it is therefore assumed that this difference in the pain of payment, together with dissonance effects, is driving the observed pattern of evaluations. The significant interaction between payment mode and ownership phase indicates that neither of the two presented frameworks, mental accounting or cognitive dissonance, is sufficient to explain the processes involved. According to the theory of mental accounting, in all ownership phases the car should be evaluated better when financed by down payment than when financed by installments. Payment by installments should bring about an attenuation of the experienced utility of the car as future payments remain fully recognized. In contrast, a car financed by down payment could be enjoyed as though it was free as the costs are already largely written off. At best, the difference in evaluations between payment by installments and down payment should decrease over time as the outstanding credit is reduced bit by bit. However, in none of the ownership phases of the current study were cars evaluated significantly better when financed by down payment. Cognitive dissonance may be suitable to explain most of the volatility in hedonic car evaluations, especially with

regard to the first and second years, but cannot account for the sharp decline of the ratings of the installments group during the third year. In the first year after purchase, the car was evaluated very positively in both the down payment and the installments group. This could be because the pleasure of the newly bought car outweighs the costs, or because of post-decision dissonance reduction operating in both groups. In the second year, the hedonic evaluation of the car decreased in the down payment group, whereas it remained constant in the installments group. Such a development cannot be explained by the theory of mental accounting, but by the theory of cognitive dissonance. Car owners using payment by installments can justify the effort of ongoing payments by evaluating their car very positively. Car owners using down payment, on the other hand, need not justify any costs, because the initial payment has already been mentally depreciated. In the third year, the evaluations declined strongly in the installments group, whereas they remained at the same level in the down payment group. One possible explanation for such a development is that the mechanism of dissonance reduction can no longer be maintained and that the mechanism of mental accounting becomes more influential. Accordingly, installment payment causes an attenuation of the experienced utility of the car.

Prediction of post-purchase evaluations

Planners in the installments as well as the down payment group predicted a linear decrease of evaluations over time. The influence of the payment mode on evaluations, i.e. the time-dependent variation of owners' ratings depending on the selected payment mode, was not predicted by planners. This finding is consistent with previous research showing that people have problems predicting future emotions and especially with the finding that they are unable to anticipate dissonance effects (Gilbert & Ebert, 2002; Snell et al., 1995).

This finding highlights that people appear to be unaware of relevant psychological processes that can have an influence on their hedonic post-purchase evaluations of consumer goods. These mispredictions are relevant because they can have an influence on consumer decisions and consumer satisfaction.

Limitations

One limitation relates to the generalizability of the results to other products. The present study focused on cars only. Cars were shown to have both hedonic and utilitarian value (Voss et al., 2003). It would be interesting to examine whether the pattern observed can also be seen for other products, e.g. exclusively hedonic or utilitarian products. Furthermore, the sample only consisted of owners and planners who were surfing the web pages of automobile clubs and car forums. These participants may have more interest in cars than the general public. Future studies therefore need to test for the generalizability of our results across contexts. The study used a cross-sectional design for comparing evaluations of different owner groups, and compared the predictions made by one group with the current experiences reported by another group. The latter may not be ideal, but is a widely used approximation (e.g. Gilbert et al., 1998). However, in all analyses potentially relevant variables (i.e. age, gender, income, price of the car, and attitude towards loans) were controlled for and the results remained stable. Finally, owing to the design of the present study, it was not possible to identify the influence of personality traits or transient affective states. These factors at an individual level can influence hedonic post-purchase evaluations (e.g. Mooradian & Olver, 1997).

Theoretical implications

On the issue of effects of payment mode on post-purchase evaluations, the pattern of the results suggests that a combination of the presented theoretical

frameworks is needed. According to mental accounting theory, it could be assumed that cars bought on down payment are evaluated more positively than cars bought on installments. However, this was not the case, and in Year 2, cars bought on installments were even evaluated more positively.

The theory of cognitive dissonance – in particular the processes of post-decision dissonance and effort justification – appears to offer explanations for some of the patterns observed in the data, and the authors therefore suggest expanding mental accounting theory with cognitive dissonance elements. As a starting point, the authors consider the basic postulate that dissonance arises when inconsistent cognitions are simultaneously held (Festinger, 1957). Consequently, the assumption of mental accounts holding the costs and benefits of a consumer transaction simultaneously should by definition cause dissonance, in particular when costs and benefits are strongly linked (“coupled” in the terminology of Prelec and Loewenstein (1998)). Second, cognitive dissonance theory suggests that the entries in mental accounts are volatile: additional elements can be added, or elements can be redefined, resulting in changes in the perceived costs and benefits. Third, the mechanism of dissonance reduction would suggest that when evaluating a mental account, and finding a high discrepancy between costs and benefits, people would be either motivated to influence the entries actively, or to influence the association between them actively. These considerations would extend mental accounting theory by the following predictions: (a) When cost–benefit associations are strong, dissonance can occur. (b) Dissonance can lead to a change of the perceived benefits or the perceived costs, while leaving the cost–benefit associations unchanged. (c) Dissonance can lead to a change in the cost–benefit associations, while leaving perceived benefits or costs unchanged. These considerations suggest a dynamic process over time. However, people have difficulties in forecasting cognitive

dissonance effects (e.g. Gilbert & Ebert, 2002; Snell et al., 1995; Wilson, Wheatley, Kurtz, Dunn, & Gilbert, 2004), and are therefore prone to underestimate these dynamics.

It should be mentioned that the presented interaction of mental accounting and cognitive dissonance to explain the pattern of the current data is theoretical. The data of the present study does not allow a direct test of the mechanisms of mental accounting and cognitive dissonance; however some alternative explanations can be ruled out. First, results could be biased by differences between groups. It therefore was controlled for variables that might influence evaluations (gender, age, income, price of the car, attitude towards loans) in all analyses, which never changed the results. Furthermore, a detailed analysis of the hedonic evaluations by months of ownership showed the same pattern of results indicating that results were not influenced by the formation of groups. Second, alternative theoretical explanations for the decrease of evaluations over time could be an endowment effect (Thaler, 1980) or adaptation processes (e.g. Frederick & Loewenstein, 1999). The endowment effect is appropriate for an explanation of the high initial ratings of both groups, adaptation is appropriate for an explanation of the decrease over time; however neither of the two explanations is applicable for the interpretation of the time-dependent fluctuations of the hedonic evaluations depending on the payment mode. Follow-up studies are needed to justify the assumed interaction between mental accounting and cognitive dissonance. Unfortunately, there are hardly any scales measuring cognitive dissonance which would allow direct testing of its occurrence. Sweeney, Hausknecht and Soutar (2000) have developed a scale to assess cognitive dissonance at the post-purchase, pre-use stage. The development of more scales measuring cognitive dissonance, particularly applicable at the post-purchase stage throughout the consumption period, would be helpful. In their absence,

complementary qualitative interviews in addition to quantitative methods might also help to assess the role of cognitive dissonance in post-purchase product evaluations.

With regard to the issue of affective forecasting, the forecasts of hedonic evaluations made by planners did not match well with the actual evaluations made by the owners. It is notable that participants did not foresee the time-dependent fluctuations of owners' ratings depending on the selected payment mode. This result is not surprising given the numerous studies demonstrating that people are unable to anticipate dissonance effects (e.g. Gilbert & Ebert, 2002; Snell et al., 1995), but has substantial implications for research in the domain of product evaluation. Whenever actual and concrete product evaluation is the focus of research, results of studies using experimental designs based on hypothetical evaluations, most notably estimations of the actual or future value of a product should consistently be reassessed in field studies.

Practical implications

Results suggest not only theoretical implications but also practical ones. The first practical implication relates to repayment plans. The results of the present study show that participants financing their car by installments evaluate the car very positively at the beginning of their repayments. The pleasure of the newly bought car appears to outweigh the pain of ongoing payments. Only after some time does the pain of paying appear to attenuate the pleasure of consumption. It therefore seems advisable to offer credit plans with falling rates, which reduce the pain of paying over time. Studies show that people prefer improving sequences (e.g. Loewenstein & Prelec, 1993), and this preference extends to credit repayment plans (Hoelzl, 2008). It is relevant for marketers that consumers evaluate the product positively throughout the whole consumption period as it has been shown that consumption emotions have an

impact on post-consumption behavior such as positive and negative word-of-mouth, repurchase intention, and complaint behavior (e.g. Ladhari, 2007; Soscia, 2007).

Another practically relevant finding is that consumers seem to have difficulties predicting dissonance effects and therefore mispredict future positive evaluations of the product. As anticipated emotions are guiding choice (e.g., Mellers et al., 1999), it is in the interest of marketers to improve the accuracy of consumers' hedonic predictions. An interesting question for future research will therefore be to identify ways to enhance this accuracy. Increased accuracy in forecasting both the pleasures of consumption and the pains of payment could help to reduce problems in credit repayment.

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Table 1

Predicted and experienced hedonic evaluations of the car

	Year 1			Year 2			Year 3		
	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>
Owners									
Down payment	9.62	1.47	49	8.45	2.38	44	8.72	1.86	41
Installments	9.58	1.48	73	9.54	1.26	70	8.29	2.01	69
Planners									
Down payment	8.78	1.44	42	8.20	1.65	42	8.01	1.84	42
Installments	8.68	1.53	33	8.45	1.74	33	8.26	1.61	33

Note. Owners reported current hedonic evaluations (between-subjects), Planners reported predictions for each year (within-subjects). Evaluations range from 1...negative to 11...positive.

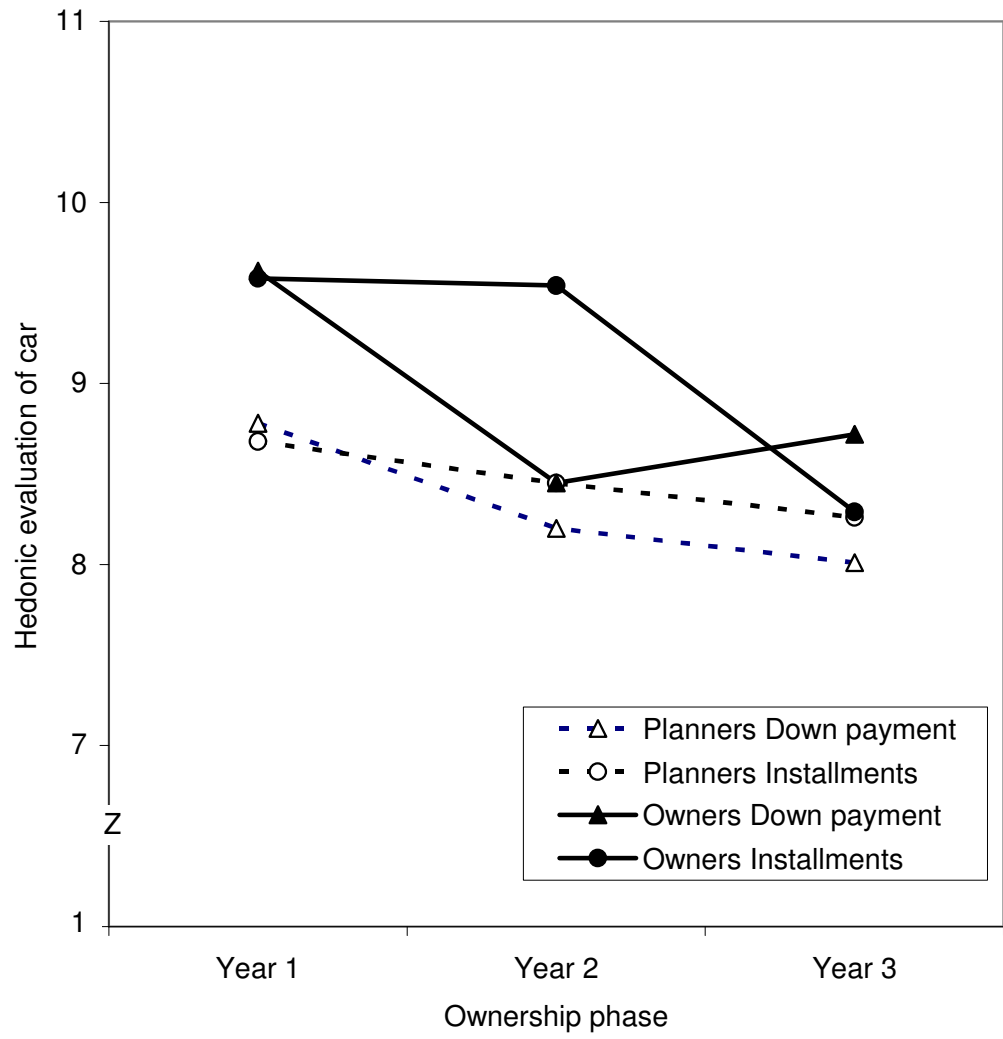
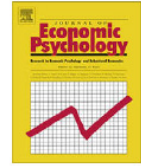


Figure 1. Predicted and experienced hedonic evaluations of the car

Article 3

Hoelzl, E., Pollai, M., & Kamleitner, B. (2009). Experience, prediction and recollection of loan burden. *Journal of Economic Psychology*, 30 (3), 446-454.



Experience, prediction and recollection of loan burden

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ABSTRACT

Loan use is a process over time, and the subjective loan burden may differ over stages. In this paper, experience of loan burden over time is contrasted with forecasts and recollections. Furthermore, it is suggested that loan burden relates to the mental association between the loan and the loan-financed goods. A survey of 117 homeowners at different stages of the loan process demonstrated that participants expected lower levels of loan burden in the future and reported higher levels in the past; in their view, loan burden decreases over the loan period. In contrast, participants at all stages reported similar current loan burden, suggesting no systematic change over time. Predictions and recollections were systematically different from experience: predictions were too positive, recollections too negative. Subjective loan burden can, in part, be predicted by home-to-loan associations, i.e. the degree to which thoughts of the home evoke thoughts of the loan. Homeowners seem to hold an intuitive theory about adaptation to the financial situation and this contributes to misforecasts.

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Household debt has grown considerably over recent years. In the United States, household debt is at a record high relative to disposable income, with the primary driver being mortgage debt, rising from 36% of disposable income to 66% over the past 30 years (Maki, 2000). Several researchers (e.g. DeVaney & Lytton, 1995; O'Neill, 1995) have pointed out that debt not only implicates direct costs but also indirect personal, emotional and psychological costs. Empirical evidence suggests that debt is associated with higher levels of psychological distress. For example, taking out a student loan involves a psychological burden, and indebted students report poorer psychological well-being (Roberts, Golding, & Towell, 1998; Stradling, 2001). Similarly, Brown, Taylor, and Wheatley Price (2005) found that households with outstanding credit are less likely to report high levels of psychological well-being than households without debt. Moreover, there are some indications that subjective financial strain is associated with common mental disorders (Weich & Lewis, 1998), with health problems (e.g. Drentea & Lavrakas, 2000) and with marital conflict (Dew, 2007).

A better understanding of credit, loan burden and its relation to consumer well-being can be achieved by viewing credit use as an evolving and dynamic process (Kamleitner & Kirchler, 2007). In the current paper, we adopt a process view and

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investigate how homeowners experience loan burden over time. In the following, we will use the term 'loan burden' to refer to feelings of psychological and financial strain attributed to the loan, e.g. distress, negative emotions or feelings of being restricted in one's activities because of the loan. We examine how people predict loan burden will change in the future; how they recollect such change in the past; and whether these theories fit the actual experience of the course of loan burden over time. Furthermore, we examine whether the degree of mental cost–benefit association (i.e. whether thoughts of the loan evoke thoughts of the home and vice versa) is related to loan burden, and whether actual experience, prediction and recall of cost–benefit associations follow similar patterns to the loan burden.

1. Predictions and recollections

Research has shown that people anticipate how they will feel about the outcomes of decisions, and that choice is guided by these anticipated emotions (Mellers, Schwartz, & Ritov, 1999; Shiv & Huber, 2000). For example, when making a decision about taking up a loan for a house or apartment, people are likely to consider how much emotional strain the loan will cause. A crucial question is, therefore, whether people can accurately predict which events will make them feel in what way. Research on 'affective forecasting' indicates that such predictions are often not in line with actual emotions, and that misforecasts occur (e.g. Gilbert, Pinel, Wilson, Blumberg, & Wheatley, 1998; Loewenstein & Schkade, 1999; Wilson & Gilbert, 2003). Affective forecasting can be described through the dimensions of valence, intensity and duration (Wilson & Gilbert, 2003). In general, people make accurate predictions about the valence of their emotional experiences but have problems predicting intensity and duration. The most common problem is the impact bias, defined as the tendency to overestimate the impact that future events will have on the intensity and duration of emotional reactions. Loewenstein and Schkade (1999) note that the quality of decisions depends on the accuracy of the predictions about future emotions. For example, in the case of consumer purchases, errors in predicting feelings can lead to consumer dissatisfaction (Loewenstein & Schkade, 1999; MacInnis, Patrick, & Park, 2005). In the context of mortgages, affective misforecasts become problematic when people overestimate the positive future emotions related to the house or apartment, or when they underestimate the future negative emotions related to the loan.

There are several reasons why a mismatch between predicted and experienced emotions can occur (Loewenstein & Schkade, 1999; Wilson & Gilbert, 2003). People may neglect non-focal factors that can influence their feelings in the future (focalism), they may underestimate how quickly they can cope with positive and negative events (sense-making) or they may underestimate the impact of drives and visceral states (hot/cold empathy gap). An additional reason for affective misforecasting can be found in inaccurate intuitive theories of well-being (Gilbert et al., 1998; Loewenstein & Schkade, 1999; Wilson & Gilbert, 2003). People hold various intuitive theories of hedonics, i.e. theories about what makes them happy or unhappy, theories about changes in taste and about moods at different points in time (Loewenstein & Schkade, 1999). Whereas most explanations focus on single events and their emotional consequences, intuitive theories can also be applied to experiences that extend over time.

Taking out a loan is a long-term process and therefore intuitive theories of change or stability of emotions, of adaptation and habituation are important when considering loan burden over time. Some research has shown that people are likely to overestimate adaptation. People expect adaptation in situations where in fact it does not occur, e.g. people believe in more adaptation to noise than research has shown to occur (Snell, Gibbs, & Varey, 1995). People also believe in adaptation when predicting changes in their tastes (Kahneman & Snell, 1992). However, other research has shown that situations occur in which people are likely to underestimate adaptation processes. For example, Ubel, Loewenstein, and Jepson (2005) found some evidence that people fail to consider adaptation to disability. More generally, Igou (2004) demonstrated that intuitive theories of affect progression actually have an influence on affective forecasts. Participants who were subtly primed with a theory of decreasing affect predicted a shorter duration of affective reactions than participants primed with a theory of continuing affect.

Implicit theories, e.g. on changes in loan burden, are not only able to explain systematic variation in prediction of emotions but also in recall of emotions. Similar to forecasts, memories of emotions are susceptible to biases that reduce accuracy (e.g. Levine & Safer, 2002). People base recall on implicit theories of stability and change (Ross, 1989), which can result in two forms of systematic biases: (a) people exaggerate stability, and therefore overestimate the similarity of past and present; (b) people exaggerate change, and therefore overestimate the extent to which their present state differed from an earlier state. For example, Conway and Ross (1984) found that participants' beliefs about the effectiveness of a study skill programme led to biases in recall (i.e. underestimation of their original skills) as well as predictions (i.e. future grades).

In summary, intuitive theories can contribute to systematic differences between actual experience on the one hand, and predictions and recall on the other. If people cling to intuitive theories of constancy, and change occurs in reality, they will underestimate such actual change in prediction and recall. If people cling to intuitive theories of change, and no change occurs in reality, they will overestimate change in prediction and recall. In a loan context, there is evidence that people's intuitive theories are theories of change. First, an interview study with prospective and actual loan users (Kamleitner & Kirchler, 2006) suggests that people expect at least some decrease in subjective loan burden over time. Second, expectations of improvement appear to be linked to credit use: students often borrow money because they expect higher future incomes (Davies & Lea, 1995) and hence a decrease in loan burden; and optimistic consumers were shown to borrow more (Brown

et al., 2005; Van Raaij & Gianotten, 1990). If loan users hold implicit theories of a decrease in loan burden, and if loan burden remains constant in reality, they are likely to overestimate actual change in both prospect and retrospect.

2. Cost–benefit associations

Taking up a loan and living in a new home brings both costs and benefits: on the one hand, the recurring payments and the resulting emotional burden; on the other hand, the pleasures of having one's own space for living. Recent theoretical considerations (Kamleitner, Hoelzl, & Kirchler, 2007; Kamleitner & Kirchler, 2006; Prelec & Loewenstein, 1998; Soman & Gourville, 2001; Thaler, 1999) suggest that how people experience a transaction depends on how they mentally associate costs and benefits (for a literature review see Kamleitner & Hoelzl, in press). Building on mental accounting, Prelec and Loewenstein's (1998) theory of prospective double-entry mental accounting suggests that people associate the costs and benefits of a transaction to differing degrees ('coupling'), and that such differences may influence consumer experiences. Thus cost–benefit associations may also influence perceived loan burden. The direction and strength of cost–benefit association are described by two coefficients: α is the degree to which thoughts of consumption evoke thoughts of payment and β is the degree to which thoughts of payment evoke thoughts of consumption. If α is high, each thought related to consumption (e.g. the house) leads to thoughts of the payment (e.g. the loan). Conversely, if β is high, each thought related to the payment (e.g. the loan) leads to thoughts of consumption (e.g. the house). Each direction of association is assumed to have specific hedonic consequences: α stands for 'attenuation' and indicates the degree to which thoughts of payment attenuate the pleasure of consumption; β stands for 'buffering' and indicates the degree to which the pain of payment is buffered by thoughts of consumption benefits (Prelec & Loewenstein, 1998). Translating this to the current context, α would be the home-to-loan association: the stronger it is, the more the home evokes thoughts of the loan, which, in turn, reduces the pleasure of the home. β would be the loan-to-home association: the stronger it is, the more the loan evokes thoughts of the home, which, in turn, reduces the loan burden.

However, recent research suggests an additional mechanism via which cost–benefit associations influence behaviour. Strong associations are argued to make the associated cognition mentally accessible (Kamleitner et al., 2007). The ease of accessibility is, in turn, interpreted in accordance with intuitive theories (e.g. Schwarz, 2004; Schwarz, Sanna, Iann, & Yoon, 2007). In particular, if a loan-financed house strongly evokes thoughts of the loan, the loan becomes easily accessible to consumers. Since in most cases the loan will be aversive, consumers might interpret their intense thoughts of the loan as indicative of the massive pain of paying. Now, α would no longer only attenuate consumption pleasure, rather it would also increase the pain of paying, i.e. the loan burden. In line with this reasoning, Kamleitner et al. (2007) report consistent evidence that α has an impact on the perceived pain of paying.

Summarizing, these considerations suggest that loan burden in part depends on cost–benefit associations. If strong, both directions of association may influence loan burden. The loan-to-home association may buffer the loan burden, whereas the home-to-loan association may lead to the perception of an increased loan burden.

Assuming that cost–benefit associations relate to the subjective pain of paying, a change in cost–benefit associations should correspond to a change in loan burden. In fact, a cross-sectional interview study found some evidence that loan users experience and expect a decrease in both directions of cost–benefit associations over the course of the credit period (Kamleitner & Kirchler, 2006). Loan users' intuitive theories of change in cost–benefit associations thus seem similar to their intuitive theories of change in subjective loan burden: In both cases, loan users seem to expect a decrease. If no such decrease occurs, loan users are likely to overestimate actual change in prospect and retrospect. We expect to observe patterns of experience, anticipation and recall of cost–benefit associations that are similar to patterns of experience, anticipation and recall of subjective loan burden.

In summary, in the present study we examine: (a) whether loan burden changes over time; (b) whether people predict a decrease of loan burden in the future; (c) whether they recall such a decrease in the past; and (d) whether these predictions and recollections fit the actual change of loan burden. Furthermore, we investigate (e) whether the degree of cost–benefit association is related to loan burden; and (f) whether actual experience, prediction and recollection of change in cost–benefit associations follow similar patterns as change in loan burden.

3. Method

3.1. Material

Data were collected in a survey with homeowners who held a loan for their house or apartment. In a cross-sectional design, participants were compared at three stages of the loan process. Groups were formed a priori according to how long they had lived in the house or apartment in question. Group 1 participants had lived in their home for up to five years, group 2 participants between 5.1 and 10 years and group 3 participants between 10.1 and 15 years. A time period of 15 years was chosen because normally this is the minimum duration of a mortgage loan in Austria.

Questionnaires differed between the groups with the aim being that all participants had to report on the same three stages in the loan process; participants at the beginning of the loan process had to make predictions for the future and participants at the end of the loan process had to form recollections. In detail, group 1 reported current experience and

predictions for time points 5 and 10 years in the future. Group 2 reported current experience, predictions for a time point 5 years in the future and recollections for a time point 5 years in the past. Group 3 reported current experience and recollections for time points 5 and 10 years in the past. Among other questions the key items in the questionnaire regarded loan burden and cost–benefit associations. Each participant had to answer the same questions for the three different points in time.

Loan burden: Two questions examined loan burden, measuring general feelings of strain and feelings of being constrained in one's activities ('To what extent do you feel the loan to be a psychological strain?'; 'To what extent does the loan have an impact on your private life regarding other expenditures such as holidays, purchase of consumer goods, luxury goods?'; very weakly – very strongly, seven-point scale). The mean of these two items was used as an index for loan burden (Cronbach's $\alpha = 0.82$).

Cost–benefit association: The extent of cost–benefit association was measured by two questions corresponding to the direction of association (home-to-loan association: 'When you think of your house or your apartment, does this also make you think of your loan?'; loan-to-home association: 'When you think of your loan, does this also make you think of your house or your apartment?'). Each question was answered by three items (after long consideration – automatically, very weakly – very strongly, never – always, seven-point scale). These items aimed to capture the frequency, automaticity and strength of the associations. The mean of these three items was used as an index for home-to-loan association (Cronbach's $\alpha = 0.91$) and loan-to-home association (Cronbach's $\alpha = 0.89$).

3.2. Procedure

Participants were recruited by visiting residential areas with one-family houses and owner-occupied flats in Lower and Upper Austria. At first contact, participants were asked how long they had been living in their house/apartment. Depending on the group (0–5 years, 5.1–10 years, 10.1–15 years) the respective questionnaire was handed out and explained. The questionnaire was collected the following day and participants received €15 in payment. On average, it took 15 min to complete the questionnaire.

3.3. Participants

A total of 137 participants were recruited. Twenty participants were excluded because they had already paid off their loan or the remaining loan period was shorter than the period they were asked to make predictions for. Thus, the analysis was based on 117 respondents, of whom 57 were male and 60 female. Age ranged from 26 to 73 with a median of 39 years ($M = 41.29$, $SD = 9.22$). Five participants indicated a household net income up to €1500, 15 between €1500 and €2000, 19 between €2000 and €2500 and 76 reported an income over €2500. The monthly payments for the loan ranged from €20 to €1750 with a median payment of €600. Forty-three participants had lived in their house/apartment for 0–5 years (group 1), 36 participants for 5.1–10 years (group 2) and 38 participants for 10.1–15 years (group 3).

4. Results

4.1. Changes in loan burden over the course of the loan period

To investigate changes in loan burden over the course of the loan period, we compared current reports of participants of group 1 (0–5 years), group 2 (5.1–10 years) and group 3 (10.1–15 years). A one-way ANOVA revealed no significant effect of group on loan burden, $F(2, 114) = 0.97$, $p = 0.38$. Participants of all groups reported similar average loan burden (group 1: $M = 3.05$; group 2: $M = 3.60$; group 3: $M = 3.29$; see Table 1).

To control for differences in the sample structure due to the quasi-experimental design, and to make sure that differences in loan burden were not suppressed by other factors that might have an influence on loan burden, we reran the analysis

Table 1
Experienced, predicted and recollected loan burden, by group and time.

Duration of living in home	Stage of loan process					
	Time 1		Time 2		Time 3	
	M	SD	M	SD	M	SD
Group 1 ($n = 43$)	3.05	1.80	2.77 ^b	1.50	2.13 ^{ab}	1.37
Group 2 ($n = 36$)	4.67 ^{a,b}	1.66	3.60	1.71	3.36	1.76
Group 3 ($n = 38$)	4.68 ^{a,b}	1.89	4.22 ^a	2.03	3.29	1.74
Total ($n = 117$)	4.08	1.94	3.50	1.84	2.88	1.70

Note: Current reports are printed in bold along the diagonal, entries above the diagonal are predictions, entries below are recollections. Predictions or recollections marked with ^a are significantly different from current reports within a row (group); Predictions or recollections marked with ^b are significantly different from current reports within a column (time), t -tests, $p < 0.05$.

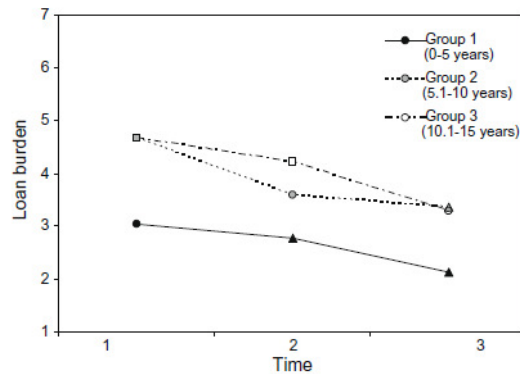


Fig. 1. Loan burden, by group and time. Note: Current reports are marked with a circle, predictions with a triangle and recollections with a square. Time 1 represents the first five years of the loan process (current experience of group 1, 5-year recollections of group 2 and 10-year recollections of group 3). Time 2 represents the years 6–10 of the loan process (current experience of group 2, 5-year predictions of group 1 and 5-year recollections of group 3). Time 3 represents the years 11–15 of the loan process (current experience of group 3, 5-year predictions of group 2 and 10-year predictions of group 1).

including the covariates gender, age, income and monthly payment. The ANCOVA led to the same results and demonstrated no significant effect of group on loan burden, $F(2,99) = 1.45$, $p = 0.24$. To check whether the non-significant result was due to the small sample size we conducted a post hoc power analysis, which showed sufficient power: the power observed to detect a medium effect ($f = 0.25$) was 0.66 and to detect a large effect ($f = 0.40$) was 0.98. To check whether any differences were suppressed by grouping, a correlation between loan burden and the exact duration of living in the home was conducted and found to be non-significant, $r(116) = 0.07$, $p = 0.49$. Overall, these results suggest that experienced loan burden does not differ systematically across different stages of the loan period.

4.2. Prediction and recollection of loan burden

To examine the differences between current experiences, predictions and recollections, reports were combined into three variables representing three points in time. Time 1 represents the first five years of the loan process and includes the current experience of group 1 participants, 5-year recollections of group 2 participants and 10-year recollections of group 3 participants. Time 2 represents the next 5 years of the loan process and includes the current experience of group 2 participants, 5-year predictions of group 1 participants and 5-year recollections of group 3 participants. Finally, time 3 represents years 11–15 of the loan process and includes the current experience of group 3 participants, 5-year predictions of group 2 participants and 10-year predictions of group 1 participants.

A 3 (group) \times 3 (time, within-subjects) ANOVA¹ yielded a significant main effect of group, $F(2,114) = 10.55$, $p < 0.01$, and a significant main effect of time, $F(2,228) = 42.76$, $p < 0.01$, on loan burden. The interaction was not significant, $F(4,228) = 2.30$, $p = 0.06$. However, a tendency for an interaction can be seen and is due to group 2 participants who reported higher differences between current and recollected loan burden than between current and predicted loan burden (see Table 1 for details and Fig. 1 for illustration of the pattern).

The main effect of time indicates that participants reported different levels of loan burden for different points in time. The graphical analysis illustrates that all groups reported a decrease in loan burden over time, predicting as well as recollecting this decrease. Detailed comparisons revealed that participants expected no change in loan burden in the next five years, but a decrease in the long run during the next 10 years. Furthermore, they reported a higher loan burden for both 5 and 10 years in the past (for all simple comparisons see Table 1). Thus, in the view of the participants, loan burden appears to decrease over the course of the loan period. By contrast, as analyses in Chapter 4.1 have shown, participants in all three groups reported similar current loan burden.

The main effect of group indicates that the groups differed in their average reported loan burden. Differences in average loan burden probably occurred because participants based predictions and recollections on current loan burden. Groups reported similar current loan burden and a similar change in loan burden. Looking back made the recalled loan burden larger, whereas looking forward made the anticipated loan burden lower. We analysed these differences in detail with simple comparisons comparing reports of the three groups for the same points in time (for all simple comparisons see Table 1). The overall pattern showed that neither predictions nor recollections correspond with actual experiences. Predictions appear too

¹ An ANCOVA including the covariates gender, age, income and monthly payment led to the same results with a significant main effect of group, $F(2,99) = 13.79$, $p < 0.01$, a significant main effect of time, $F(2,206) = 41.45$, $p < 0.01$ and a non-significant interaction, $F(4,206) = 2.26$, $p = 0.06$.

Table 2
Correlations.

	Correlations					
	1	2	3	4	5	6
1. Loan burden						
2. Gender	–0.04					
3. Age	0.01	–0.04				
4. Monthly payment	0.30*	–0.05	–0.15			
5. Income	–0.32*	–0.04	–0.17	0.13		
6. Loan-to-home association	0.39*	–0.03	0.02	–0.01	–0.22*	
7. Home-to-loan association	0.65*	–0.10	0.14	0.18	–0.25*	0.50*

Note: Gender: 0 = male, 1 = female; Age in years, centred on the median, 0 = 39 years; Monthly payment: 0 ≤ €600, 1 > €600; Income: 0 ≤ €2500, 1 > €2500; Associations: very weakly – very strongly, seven-point scale. * $p < 0.05$.

Table 3
Loan burden regressed on home-to-loan association and loan-to-home association.

	B	SE	β	p
Constant	1.36	0.46		<0.01
Gender	0.04	0.23	0.01	0.85
Age	–0.01	0.01	–0.08	0.28
Monthly payment	0.74	0.25	0.21	<0.01
Income	–0.94	0.26	–0.25	<0.01
Loan-to-home association	0.03	0.09	0.02	0.76
Home-to-loan association	0.62	0.09	0.59	<0.01
Total R^2	0.54			

Note: Gender: 0 = male, 1 = female; Age in years, centred on the median, 0 = 39 years; Monthly payment: 0 ≤ €600, 1 > €600; Income: 0 ≤ €2500, 1 > €2500; Associations: very weakly – very strongly, seven-point scale.

positive: predicted loan burden is lower than actual loan burden. Recollections, on the other hand, appear too negative: recollected loan burden is higher than actual loan burden.

4.3. Relation between loan burden and cost–benefit association

Zero-order correlations of all variables are reported in Table 2. Loan burden is significantly correlated with home-to-loan association ($r = 0.65$) as well as loan-to-home-association ($r = 0.39$). Furthermore, participants with a low income ($r = -0.32$) and high monthly payment ($r = 0.30$) experience higher loan burden, and participants with a low income report higher home-to-loan ($r = -0.25$) as well as loan-to-home associations ($r = -0.22$). Home-to-loan and loan-to-home association are also moderately correlated ($r = 0.50$).

To study the relation of cost–benefit association to loan burden in more detail, we conducted a multiple regression analysis, regressing loan burden on home-to-loan association and loan-to-home association. Taking into account the covariates age, gender, income and monthly payment, in a first step we conducted a regression model including only these variables. In a second step we added home-to-loan association and loan-to-home association into the regression analyses. Compared with the first model, in the second model R^2 was significantly increased from $R^2 = 0.22$ to $R^2 = 0.54$, $p < 0.01$. After controlling for covariates, loan burden was only significantly influenced by home-to-loan association ($\beta = 0.59$) but not by loan-to-home association ($\beta = 0.02$, Table 3). It is noteworthy that although the zero-order correlation between loan burden and loan-to-home association was significant and opposite to the prediction of buffering (Prelec & Loewenstein, 1998), this correlation seems to be due to the interrelation between home-to-loan and loan-to-home associations because it was suppressed in the multiple regression analysis. When considering both directions of association simultaneously, only the home-to-loan association showed an effect on loan burden. The same results were found when conducting a separate multiple regression analysis for each group (home-to-loan association: $\beta_{group1} = 0.70$, $\beta_{group2} = 0.49$, $\beta_{group3} = 0.53$; loan-to-home association: $\beta_{group1} = -0.01$, $\beta_{group2} = 0.24$, $\beta_{group3} = -0.14$).

Results suggest that only one direction of association, home-to-loan association, is relevant for experienced loan burden². Therefore, subsequent analyses focus on home-to-loan association only. Considering that home-to-loan association predicts loan burden, it should follow the same pattern of experience, prediction and recollection over time. A one-way ANOVA³ on

² Note that this is not due to ceiling or floor effects in loan-to-home association ($M = 4.27$, $SD = 1.60$, range 1–7).

³ An ANCOVA including gender, age, income and monthly payment as covariates led to the same results with no significant effect of group on home-to-loan association, $F(2,99) = 0.24$, $p = 0.78$.

Table 4
Experienced, predicted and recollected home-to-loan association, by group and time.

Duration of living in home	Stage of loan process					
	Time 1		Time 2		Time 3	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Group 1 (<i>n</i> = 43)	3.22	1.67	3.15	1.74	2.47 ^{a,b}	1.49
Group 2 (<i>n</i> = 36)	5.11 ^{a,b}	1.49	3.26	1.55	3.50	1.44
Group 3 (<i>n</i> = 38)	4.84 ^{a,b}	1.78	4.25 ^{a,b}	1.67	3.52	1.67
Total (<i>n</i> = 117)	4.33	1.85	3.54	1.72	3.13	1.60

Note: Current reports are printed in bold along the diagonal, entries above the diagonal are predictions, entries below are recollections. Predictions or recollections marked with ^a are significantly different from current reports within a row (group); Predictions or recollections marked with ^b are significantly different from current reports within a column (time), *t*-tests, $p < 0.05$.

home-to-loan association revealed no significant effect of group, $F(2,114) = 0.39$, $p = 0.68$. Participants in all groups reported similar average levels of home-to-loan association, suggesting that there are no systematic changes over time (group 1: $M = 3.22$; group 2: $M = 3.26$; group 3: $M = 3.52$; Table 4). Hence, it seems that not only loan burden but also home-to-loan association remains constant over the course of the loan period.

The pattern with regard to differences between current experiences, predictions and recollections of home-to-loan association was also similar to the pattern of loan burden. A 3 (group) \times 3 (time, within-subjects) ANOVA⁴ yielded a significant main effect of group, $F(2,114) = 9.64$, $p < 0.01$ and a significant main effect of time, $F(2,228) = 41.47$, $p < 0.01$, as well as a significant interaction, $F(4,228) = 7.74$, $p < 0.01$. The interaction is due to group 2 participants, who reported higher differences between current and recollected home-to-loan association than between current and predicted home-to-loan association. Details are shown in Table 4.

In summary, home-to-loan association predicted loan burden. In line with this finding, experience and subjective change in loan burden and home-to-loan association followed the same pattern: participants in all stages of the loan process expected lower levels in the future or recollected higher levels in the past. Thus, participants appeared to believe that loan burden as well as home-to-loan association decreased over the course of the loan period. In contrast, participants in all three groups reported similar current levels. Predictions and recollections were systematically different from actual experience; predictions were too positive, recollections too negative.

5. Discussion

Results indicate that loan burden does not appear to change over time among home loan users, although loan users recall and predict a decrease in loan burden. One factor relating to subjective loan burden is the degree to which thinking about the home evokes thoughts of the loan. The stronger this mental association, the higher the subjective loan burden reported by participants. In addition, experience, predictions and recollections of a change in home-to-loan association follow the same pattern as subjective loan burden. The strength of association does not appear to change over time and yet participants predict and recollect a decrease in home-to-loan association. The similarity in patterns combined with the relation between home-to-loan association and loan burden suggests that the differences between experience and predicted and recollected loan burden can, to some extent, be explained by the differences between experience and predicted and recollected home-to-loan association.

5.1. Limitations

Although the pattern of findings is clear-cut, some limitations need to be considered. Loan burden for houses and apartments is a phenomenon that covers a long time span, whereas the current study used a cross-sectional design. First, therefore, a direct test of the assumption that the mental association between loan and home causes the loan burden (Kamleitner et al., 2007) is not possible. Second, it might be argued that the results do not necessarily imply errors in judgement. It could be possible that all three groups are correct and that, indeed, having a loan was more burdensome 10 years ago and will be less burdensome 10 years in the future. However, such an explanation seems unlikely given the general rise in credit use reported, e.g. for the US (Maki, 2000). It would be interesting to take into account changing economic conditions over time⁵; however, an overall measure of economic condition seems difficult to incorporate. We do not have access to detailed data at the individual level (e.g. specific loan conditions, income at the time of taking up the loan, etc.), which seem especially important when considering differences in economic conditions. Comparing the forecasts of one group with the current experiences of another group might not be the ideal method, but for long-term phenomena it is a useful approximation, e.g. when studying

⁴ An ANCOVA including the covariates gender, age, income and monthly payment led to the same results with a significant main effect of group, $F(2,99) = 7.81$, $p < 0.01$ and a significant main effect of time $F(2,206) = 38.16$, $p < 0.01$ and a significant interaction, $F(4,206) = 5.61$, $p < 0.01$.

⁵ We are grateful to an anonymous reviewer for this suggestion.

the impact of tenure on happiness (Gilbert et al., 1998). Third, the conclusion that no systematic change in loan burden occurs over time is based on a between-subjects comparison, whereas the analysis of forecasts and recollections is based on a within-subjects comparison with higher statistical power. However, even a fine-grained analysis of loan burden over years instead of 5-year groups using correlations showed no change, and the between-subjects comparisons of predictions versus experience and recollections versus experience were significant, which suggests that the findings are not biased by different statistical power. There are some reasons for assuming that the findings can be replicated in a longitudinal study. First, in all analyses we controlled for variables that might systematically differ between groups and might influence loan burden and cost–benefit associations (i.e. age, gender, income and loan rate). Although these variables sometimes became significant, their inclusion never changed the substantive results. Second, each group covered a range of approximately five years. Despite this long period of time and heterogeneous responses from participants, the resulting patterns are consistent.

A final limitation relates to the context. This study focused on loans for houses and apartments only. A loan for a house may well be a particular case because a house constitutes a permanent value and is used on a constant basis. In particular, we assume that our finding of constancy in actual loan burden over time may not hold in other loan contexts, e.g. consumer goods. The pattern of prediction and recollection may, however, be more universal and even apply to contexts other than loans where intuitive theories about adaptation play a role. Furthermore, it might be argued that the sample size is rather small; however, as reported in the results section a post hoc power analysis demonstrated sufficient power. Nevertheless, future studies need to test for the generalizability of our results across designs and contexts.

5.2. Theoretical and practical implications

The present study contributes to the affective forecasting literature, to the literature on loans and to the developing research area of cost–benefit associations. With respect to the affective forecasting literature, the differences between prediction and experience observed in our study cannot be explained by the impact bias (Wilson & Gilbert, 2003). This bias would predict that people overestimate loan burden; in contrast, we found that they underestimated future loan burden. We suppose that the differences between experience, prediction and recollection we found are due to incorrect intuitive theories of change that guided predictions as well as recollections (e.g. Ross, 1989; Snell et al., 1995). Our study stands out from most previous research on affective forecasting by demonstrating differences between experience and both prediction and recollection within the same study. The fact that participants predicted as well as recollected a decrease in loan burden supports the explanation that people hold an intuitive theory of adaptation. Such a theory appears to entail a decrease in home-to-loan association and loan burden over the course of the loan period. Intuitive theories of change appear to be difficult to overcome. Since anticipation matches recall, prediction errors may not be noticed and people may face difficulties in learning from prediction errors (Meyvis, Ratner, & Levav, 2007).

A further implication for the affective forecasting literature is the finding of an overestimation of adaptation to an aversive experience. Participants in the present study believed that an aversive experience would improve over time. As illustrated in the literature review, different beliefs regarding adaptation were found in different contexts (Kahneman & Snell, 1992; Snell et al., 1995; Ubel et al., 2005). Future research needs to identify moderating factors that influence the predominance of beliefs in adaptation, constancy or sensitization to aversive experiences⁶.

With regard to the literature on loans, the results highlight the importance of a process view. Most studies focused on loans at one point in time despite loans being a long-term process (Kamleitner & Kirchler, 2007). Although some authors speculated about a change in loan burden over time (e.g. Kirchler, Hoelzl, & Kamleitner, 2008; Prelec & Loewenstein, 1998), there are few empirical analyses. Home loan users seem to expect and recall adaptation to the loan burden over time, yet no such adaptation seems to occur. In part, this might explain why loans can have an impact on psychological well-being (Brown et al., 2005; Roberts et al., 1998; Stradling, 2001). Loans seem to constitute a constant strain, even though loan users themselves appear to underestimate this constancy.

With regard to the literature on cost–benefit associations, the analyses demonstrated that loan burden was influenced by the strength of the home-to-loan association but not by the strength of the loan-to-home association. People reporting a strong association between the house and the loan were more likely to perceive a large loan burden. This pattern does not fit well with the assumption that the loan-to-home association buffers loan burden (Prelec & Loewenstein, 1998). It seems to be better explained by the assumption that cost–benefit associations make the associated content more salient and hence increase its perceived importance (Kamleitner et al., 2007). In the current case, it seems that the strong home-to-loan association made respondents more aware of the loan and triggered an increased feeling of being burdened by it.

Results also suggest important practical implications. Research has shown that anticipated emotions guide choice (Mellers et al., 1999). Consequently, it can be assumed that people take into account their anticipation of future loan burden when deciding about financing a good. Ideally, people would correctly predict loan burden, especially when considering long-term commitments such as taking out a loan for real estate. Misforecasts, as were found in the present study, might lead people to overestimate their capability to deal with a loan in the long run. The intuitive theory of adaptation to the financial situation might lead to unfavourable decisions. It would therefore be in the interest of consumer organizations and creditors to inform loan users that taking out a loan always involves a financial and emotional burden and that forecasts

⁶ We are grateful to an anonymous reviewer for this suggestion.

can be misleading. Problems in recall are also of practical importance. In retrospect, loan experience is remembered as being worse than it was but, at the same time, it is remembered as an improving sequence. Both aspects may determine word of mouth and the intention to take up a loan again, but in different directions. Whereas the overall high recalled loan burden may prevent consumers from producing positive word of mouth or taking up a loan again, the recalled improvement may lead to positive word of mouth and to the belief that one can handle a loan again. However, such a belief could overtax financial capabilities and contribute to indebtedness.

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Article 4

Pollai, M., Hoelzl E., Hahn, L., & Hahn, A. (submitted). Influence of anticipated emotions on consumer decisions: Examining the role of product type and belief in adaptation. *Journal of Psychology*.

Influence of anticipated emotions on consumer decisions: Examining the role of product type and belief in adaptation

Abstract: The present research examined the influence of anticipated consumption-related emotions on consumer decisions focusing on variables moderating this relationship. Two studies indicated that the intention to purchase a product and the intention to take out a loan were influenced by anticipated emotions. The influence of anticipated emotions was similar for hedonic and utilitarian products. However the influence was lowered when a belief in adaptation to products was cued. Examining the specific circumstances under which consumers base their decisions on anticipated emotions is relevant for marketing and consumer advisory service.

Keywords: anticipated emotions, affective forecasting, hedonic products, belief in adaptation, consumer decision making

Emotions play an important role in consumer decisions. Emotions are relevant beyond rational considerations in decision making (e.g., Loewenstein, Weber, Hsee, & Welch, 2001; Mellers et al., 1999; Schwarz & Clore, 1988) and in consumer behavior (e.g., Gardner, 1985; Havlena & Holbrook, 1986; Hirschman & Holbrook, 1982; Pham, 1998b). In the consumer context it has mainly been argued that current moods (e.g., Gardner, 1985) as well as feelings regarding the target at the moment of decision making (e.g., Pham, 1998b) influence consumer decisions.

Mellers et al. (1999) however suggest that in addition to actual emotions at the moment of decision making, decisions are influenced by emotions expected to be experienced in the future, i.e., anticipated emotions. Following this proposition, consumers imagine how they will feel owning certain products in the future and these anticipated emotions then influence purchase decisions. For example, consumers who imagine themselves being happy and content using a brand-new relaxation chair will be highly willing to make an effort to buy this particular chair.

However, so far it has been largely neglected that the extent of the influence of anticipated emotions on consumer decisions may depend on specific circumstances. For example, consumers may consider anticipated emotions when deciding to buy a hedonic product like a relaxation chair, however they may not base their decision on anticipated emotions when they think about buying a utilitarian product like a washing machine.

For marketing, the specific circumstances under which consumers base their decisions on anticipated emotions is relevant because context variables like advertising can affect these anticipated emotions. Moreover, knowing about these specific circumstances is useful for consumer advisory service to prevent consumers from mainly affect-based decisions. The present research therefore examined the influence of

anticipated consumption-related emotions on consumer decisions focusing on variables which may moderate this relationship.

Influence of anticipated emotions on decisions

The influence of anticipated emotions on decisions has mainly been examined involving decisions under risk and uncertainty. For example, decision affect theory (Mellers, 2000; Mellers & McGraw, 2001; Mellers et al., 1999) suggests that choices between gambles are driven by anticipated pleasure and pain of monetary outcomes. According to decision affect theory, people consider anticipated disappointment and regret with the possible outcomes of their choice. Further research has explored the influence of anticipated regret on decision making (e.g., Bell, 1982; Loomes & Sugden, 1982; Sandberg & Conner, 2008; Simonson, 1992). In the consumer context, asking participants to anticipate the regret associated with a purchase led them to prefer a more expensive, well-known brand over a less expensive and lesser known brand (Simonson, 1992).

Two studies in the consumer context have examined the influence of positive anticipated emotions on consumer decisions. Participants who were asked to imagine positive emotions regarding a purchase were more likely to buy products than participants who were asked to imagine negative emotions regarding the purchase (Wiener et al., 2007). Moreover, people who were asked to anticipate satisfaction with two possible options before making their choice made different choices than people who simply chose between the two options (Shiv & Huber, 2000). According to the authors, vivid attributes are likely to receive greater attention when anticipating satisfaction and therefore such attributes are weighted more heavily.

Other researchers argue that in some situations consumers may underweight anticipated emotions and rely on 'lay rationalism' (Hsee & Hastie, 2006; Hsee et al.,

2003). In a series of experiments, one group of participants had to choose between two alternatives and another group had to report their anticipated pleasure with the alternatives. In all studies, an inconsistency between anticipated pleasure and decision emerged and the authors concluded that consumers may fail to use anticipated emotions to guide their decisions (Hsee & Hastie, 2006).

Variables moderating the influence of anticipated emotions on decisions

The literature review shows that consumer decisions may not always be based on anticipated emotions. It can be assumed that the influence of anticipated emotions is moderated by specific circumstances.

One plausible moderator could be the type of product involved. Certain product categories are more hedonic, i.e., they provide more experiential consumption, pleasure and excitement (e.g., luxury products, sports equipment, entertainment electronics) whereas other categories are more utilitarian, i.e., they are more instrumental and functional (e.g., household equipment, personal computer) (e.g., Hirschman & Holbrook, 1982). Utilitarian products are more likely to be evaluated on the basis of cognitive dimensions, whereas the evaluation of hedonic products is more likely to be based on affective dimensions (Kempf, 1999). Pham (1998b) has shown that consumers were more likely to rely on current feelings when they had consummatory motives (affectively driven) than when they had instrumental motives (cognitively driven). He has therefore suggested that the relevance of feelings may also vary across product categories. These findings lead to the assumption that anticipated emotions are more relevant for decisions involving hedonic than involving utilitarian products.

In addition to product type, attention could be directed away from anticipated emotions by focusing on adaptation during the post-purchase period. Wang, Novemsky and Dhar (2009) have argued that when faced with purchase decisions, consumers often

fail to consider adaptation to products. Actively focusing the attention on the consumption period cues a belief in adaptation and consequently reduces anticipated pleasure and purchase intention. In a series of experiments, the authors have shown that asking participants to predict emotions for more than one time point cued a belief in adaptation and led participants to indicate lower purchase intention than when only making predictions for one time point. It could be assumed that focusing the attention on adaptation to products leads consumers to reconsider their purchase decisions because they become aware that emotions may fade away with time. Therefore, decisions would be less influenced by anticipated emotions. As such, we suggest that focusing the attention on adaptation does not consistently lower the level of purchase intention; instead it lowers the magnitude of the *relationship* between anticipated emotions and purchase intention.

The goal of the present research was to examine the extent of the influence of anticipated emotions on decisions in the consumer context, focusing on the question under which circumstances this influence is more or less pronounced. Two possible moderating variables were included: Product type and belief in adaptation to products. It was hypothesized that the influence of anticipated emotions on consumer decisions is lower (i) for utilitarian than hedonic products, (ii) if a belief in adaptation is cued than if no belief is cued.

Study 1 examined whether the influence of anticipated emotions on purchase intention is the same for hedonic and utilitarian products. Study 2 explored the influence of anticipated emotions on a far-reaching consumer decision – the intention to take out a loan – and additionally included belief in adaptation as a potential moderating variable.

Study 1

In Study 1 the influence of anticipated emotions on purchase intention for hedonic and utilitarian products was explored using purchase scenarios.

Method

Participants

A convenience sample of 64 participants took part in the experiment; 40 participants were female and 24 male. Age ranged from 19 to 77 with a median of 25 years. Twenty participants indicated a monthly household net income up to € 1000, 23 between € 1001 and € 2000, 13 between € 2001 and € 3000 and 8 reported an income over € 3000. Ten participants held a primary education qualification, 42 participants a secondary education qualification and 12 participants a university degree.

Material

Product type: A pre-test was conducted to identify products that could be assigned to the two categories. Ten products in the same price range (€250 to €350) were chosen and presented to twenty participants, who rated whether the product was more hedonic, i.e., provided pleasure and excitement, or more utilitarian, i.e., had a practical and functional purpose. According to these ratings, three products in each category were used for the main study: (a) Hedonic: Game console, flat screen, relaxation chair; (b) Utilitarian: Dishwasher, refrigerator, washing machine. Participants in the main study also had to rate hedonism for each product to check whether the manipulation was successful (7-point scale from ‘very utilitarian’ to ‘very hedonic’; the meaning of these labels was explained in the instructions).

Anticipated emotions: Anticipated consumption-related emotions were measured using positive (content, happy, pleased) and negative (frustrated, worried, helpless)

emotions from the Consumption Emotion Set (Richins, 1997), measured on a 5-point scale ranging from ‘not at all’ to ‘extremely’. Due to floor effects ($M = 1.08 - 1.49$, $SD = 0.37 - 0.79$), negative emotions had to be excluded from further analyses. The three positive emotions were averaged to form a scale for anticipated emotions (Cronbach’s $\alpha = .72 - .86$ for the different products).

Purchase intention: Purchase intention was measured using two items regarding the probability of purchasing the product, and the probability of purchasing the product even if the delivery time was three weeks (measured on a 5-point scale ranging from ‘very unlikely’ to ‘very likely’, Cronbach’s $\alpha = .58 - .71$).

Procedure

In an experimental online study, each participant was presented with three purchase scenarios corresponding to the three different products belonging to the same category. Participants were randomly assigned to either the hedonic or the utilitarian condition. For each scenario, participants were asked to imagine that they were considering buying the product; they had to anticipate consumption-related emotions after the purchase and had to indicate their purchase intention.

Results and Discussion

A manipulation check showed that the manipulation of hedonism was successful. Participants in the hedonic condition rated the products, which were pooled together for each category, as more hedonic ($M = 5.50$, $SD = 1.02$) than participants in the utilitarian condition ($M = 1.82$, $SD = 0.93$), $t(62) = -15.04$, $p < .01$. The flat screen was rated as most hedonic ($M = 5.21$), the washing machine as least hedonic ($M = 1.67$). For all products anticipated emotions were positively correlated with purchase intention (see Table 1).

To analyze the difference between hedonic and utilitarian products regarding the influence of anticipated emotions on purchase intention, a moderated regression analysis was conducted including the most and least hedonic products (flat screen, washing machine). Purchase intention was regressed on product type, anticipated emotions and the interaction between anticipated emotions and product type. The regression model⁶ was significant ($R^2 = .29, p < .01$). Purchase intention was significantly influenced by product type ($\beta = -.24, p = .05$) and anticipated emotions ($\beta = .59, p < .01$) but not by the interaction between product type and anticipated emotions ($\beta = -.01, p = .94$). Results of the regression analyses are summarized in Table 2.

Results indicate that the higher the positive anticipated emotions, the higher the intention to purchase the product. Purchase intention was lower for the hedonic than for the utilitarian product. Contrary to expectations, the influence of anticipated emotions on purchase intention was the same for the hedonic and the utilitarian product.

As suggested in the literature review, not only the type of product but also the belief in adaptation to products could lower the influence of anticipated emotions. Therefore the moderating role of belief in adaptation was additionally included in Study 2.

Study 2

Study 2 again examined the moderating role of product type and additionally included belief in adaptation as a moderating variable. Study 2 focused on more expensive and long-lasting products than Study 1 because adaptation to products is more relevant for long-term decisions. It was examined whether anticipated emotions also influence a far-reaching and long-term consumer decision, namely the decision to take out a loan to finance a product.

⁶ The results of the regression analysis remained stable including gender as predictor.

Method

Participants

A convenience sample of 160 students took part in the experiment; 119 participants were female and 41 male. Age ranged from 18 to 35 with a median of 24 years. Sixty-nine participants indicated a monthly net income up to € 500, 75 between € 501 and € 1000, 11 between € 1001 and € 1500 and 5 reported an income over € 1500.

Material

Product type: The hedonic scenario included the new furnishing of a flat, which was described as desirable but not necessary. The utilitarian scenario included a car, which was described as useful to get to the new workplace. Both products would cost € 9,000 and participants would have to take out a loan to finance them. Participants had to rate hedonism for the product to check whether the manipulation was successful (5-point scale from ‘very utilitarian’ to ‘very hedonic’).

Belief in adaptation: Half of the participants were asked to anticipate consumption-related emotions two years after the purchase (single-prediction condition); the other half were asked to anticipate their emotions for one week after the purchase and for two years after the purchase (double-prediction condition). This manipulation has previously been shown to cue a belief in adaptation (Wang et al., 2009).

Anticipated emotions: Anticipated consumption-related emotions were measured using the same positive emotions from the Consumption Emotion Set (Richins, 1997) as in Study 1 (contented, happy, pleased, Cronbach’s $\alpha = .81$).

Loan intention: The intention to take out a loan was measured using three items regarding the probability of discussing the option of taking out a loan with other people, the probability of gathering information from banks and the probability of actually

taking out a loan on a 5-point scale ranging from ‘very unlikely’ to ‘very likely’ (Cronbach’s $\alpha = .63$).

Procedure

Similar to Study 1, an experimental online study using purchase scenarios was conducted. Participants were randomly assigned to one of four conditions based on a 2 (Product type: Hedonic vs. utilitarian products) x 2 (Belief in adaptation: Belief in adaptation vs. no belief in adaptation) between-subjects design. Participants were asked to imagine that they were considering buying the product and that they would have to take out a loan for financing it. They had to anticipate consumption-related emotions after the purchase and had to indicate their intention to take out a loan for the product.

Results and Discussion

Similar to Study 1, the manipulation of hedonism was successful. Participants in the hedonic condition ($M = 3.84$, $SD = 0.85$) rated the product as more hedonic than participants in the utilitarian condition ($M = 1.78$, $SD = 0.89$), $t(158) = -15.04$, $p < .01$. The manipulation of belief in adaptation was also successful. Participants in the double-prediction condition anticipated lower positive emotions two years after the purchase ($M = 3.29$, $SD = 0.64$) than one week after the purchase ($M = 3.94$, $SD = 0.62$), $t(79) = 7.79$, $p < .01$. Participants in the double-prediction condition also anticipated lower positive emotions two years after the purchase than participants in the single-prediction condition ($M = 3.57$, $SD = 0.79$), $t(158) = 2.43$, $p = .02$. Anticipated emotions were significantly correlated with loan intention in three of four groups (see Table 3).

Similar to Study 1, a moderated regression analysis was conducted (see Table 4). The regression model⁷ was significant ($R^2 = .18$, $p < .01$). Loan intention was significantly influenced by anticipated emotions ($\beta = .33$, $p < .01$) and product type ($\beta =$

⁷ The results of the regression analysis remained stable including gender as predictor.

-.22, $p < .01$), the main effect of belief in adaptation was marginally significant ($\beta = .14$, $p = .06$). Importantly, the interaction between anticipated emotions and belief in adaptation was significant ($\beta = -.19$, $p = .02$). Figure 1 illustrates this interaction effect, pooled over hedonic and utilitarian products: The regression line of anticipated emotions on loan intention was less steep when a belief in adaptation was cued. This indicates that anticipated emotions had less influence on loan intention when participants had to make two predictions instead of one. The interaction also suggests that for anticipated positive emotions that are particularly high, the intention to take out a loan was reduced when a belief in adaptation is cued; this finding corresponds with Wang et al. (2009). On the other hand, when anticipated positive emotions were particularly low, the intention to take out a loan was increased when a belief in adaptation was cued.

Results indicate that the higher the anticipated positive emotions, the higher the intention to take out a loan. Similar to Study 1, loan intention was lower for the hedonic product and no difference in the influence of anticipated emotions on loan intention emerged between the hedonic and utilitarian product. As such, we did not find the hypothesized moderator effect of product type in either study. A moderating effect of belief in adaptation was found: The influence of anticipated emotions on loan intention was lower when a belief in adaptation was cued.

General Discussion

The present research examined the influence of anticipated consumption-related emotions on consumer decisions focusing on two variables which were expected to moderate this influence. Results show that purchase intention (Study 1) and the intention to take out a loan (Study 2) were significantly influenced by anticipated consumption-related emotions. In both studies, the influence of anticipated emotions did

not differ between hedonic and utilitarian products. However, Study 2 showed that the influence was lower when a belief in adaptation to products was cued.

The results support the idea of decision affect theory (Mellers, 2000; Mellers & McGraw, 2001; Mellers et al., 1999) that anticipated emotions play an important role in decision making. The present research shows that this idea can be applied to the consumer context. Not only current moods (e.g., Gardner, 1985) and feelings at the moment of decision making (e.g., Pham, 1998b) but also anticipated emotions regarding the future use of products influence consumer decisions like the purchase intention and even a long-term decision like the intention to take out a loan.

It was expected that the extent of the influence of anticipated emotions on consumer decisions would depend on specific circumstances. First, it was expected that anticipated emotions are more relevant for decisions involving hedonic products than involving utilitarian products. However, neither in Study 1 nor in Study 2 a moderating role of product type was found. Previous research has shown that the relevance of emotions depends on consumers' motives (e.g., Pham, 1998b). An explanation for the current finding could therefore be that the individual motive behind a purchase is more relevant regarding the influence of emotions than the type of product itself. Another explanation could be that asking participants to anticipate emotions right before indicating the purchase or loan intention led participants to consider anticipated emotions even for utilitarian products. In real life situations, anticipated emotions might not be as prevalent when thinking about buying utilitarian products. A way to strengthen the impact of anticipated emotions on decisions involving utilitarian products could therefore be to make anticipated emotions more prevalent.

The second moderating variable examined in Study 2 was the belief in adaptation. It was expected that focusing the attention on the consumption period cues a

belief in adaptation to products and leads consumers to reconsider their decisions. Wang et al. (2009) have shown that cueing a belief in adaptation lowers the intention to purchase a product. In the present research, the results of Wang et al. (2009) were replicated only when anticipated positive emotions were high; when anticipated emotions were low, the loan intention was increased when the attention was focused on adaptation. These results show that cueing a belief in adaptation does not consistently lower purchase intention; instead it lowers the relationship between anticipated emotions and purchase intention. Consumers seem to rethink their decisions and give more weight to rational considerations than to anticipated emotions when they consider that they consume the product over a long time and that emotions may fade away with duration of product ownership. This argument of rationalization is in line with the findings that people who were asked to analyze reasons before making a decision chose differently than people not asked to analyze reasons (T. D. Wilson & Schooler, 1991). According to Wilson and Schooler, analyzing reasons focuses the attention towards features and away from feelings because features are easy to articulate while feelings are not.

Some limitations of the present research have to be considered. First, purchase scenarios and not actual purchase decisions were examined. However, scenarios provide the opportunity to examine consumer decisions involving expensive products in controlled settings. Second, only anticipated emotions and no rational considerations were included. To support the assumption that cueing a belief in adaptation leads consumers to weight anticipated emotions less in favor of rational considerations, future studies could incorporate rational considerations when examining the influence of anticipated emotions on consumer decisions.

Several practical implications can be drawn from the findings. Research on the effectiveness of advertising strategies has mainly focused on emotions evoked by the advertisements themselves (for a review see e.g., Brown, Homer, & Inman, 1998). The present research indicates that anticipated emotions regarding the future use of products are also relevant for consumer decisions. As context variables can influence anticipated emotions (e.g., Baron, 1992; Igou, 2004; Phillips, 1996), marketing could shape consumer decisions by influencing anticipated emotions. The results suggest that enhancing positive anticipated emotions is not only a promising marketing strategy for hedonic products but also for utilitarian, functional products like dishwashers, because when making anticipated emotions prevalent, these anticipated emotions play an important role in consumer decisions regardless of product type. However, marketing could reduce the influence of anticipated emotions by focusing the attention on the consumption period. Also Wang et al. (2009) argue that highlighting the duration of consumption, for instance by pointing out a warranty, might ironically decrease consumers' purchase intention. However, this seems to be only true for products with high anticipated emotions; for low anticipated emotions highlighting the duration of consumption may increase purchase intention. Marketing should be aware of these effects and adapt their strategies accordingly.

The effect of focusing the attention on adaptation can also be used in customer advisory service and financial consultancy. Research showed that anticipated emotions often do not correspond with subsequent actual experienced emotions (for reviews see G. F. Loewenstein & D. Schkade, 1999; MacInnis et al., 2005; T. D. Wilson & Gilbert, 2003). Consumers may therefore make suboptimal decisions because they base decisions on imperfect emotional predictions. Making it salient to consumers that they will adapt to products and that their positive emotions will come to an end reduces the

influence of anticipated emotions. This strategy could be used to prevent consumers from overly affect-based decisions.

To conclude, specific circumstances lower the influence of anticipated emotions on consumer decisions. It seems that the process of rationalization is especially relevant for this relationship. Therefore further research is needed to examine this process of rationalization in more detail and to identify other mechanisms leading to rationalization to even better understand when and why consumers base or do not base their decisions on anticipated emotions.

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Table 1
Study 1: Anticipated emotions and purchase intention by product

	Anticipated emotions		Purchase intention		<i>r</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Hedonic products (n = 34)					
game console	4.10	0.50	2.68	1.03	.40*
flat screen	4.13	0.84	3.51	0.94	.56**
relaxation chair	3.81	0.86	2.71	1.06	.26
Utilitarian products (n = 30)					
dishwasher	3.60	0.65	3.50	0.94	.33*
refrigerator	3.43	0.71	3.62	0.85	.47**
washing machine	3.44	0.69	3.52	0.88	.50**

Note. * $p < .05$, ** $p < .01$, one-sided

Table 2

Study 1: Purchase intention regressed on product type and anticipated emotions

	<i>B</i>	<i>SE</i>	β	<i>p</i>
Intercept	3.57	0.11		<.01
Product type	-0.22	0.11	-.24	.05
Anticipated emotions	0.63	0.13	.59	<.01
Anticipated emotions*product type	-0.01	0.13	-.01	.94

Note. Product type: 1 = hedonic, -1 = utilitarian; Anticipated emotions: not at all – extremely, five-point scale, centered on the mean ($M = 3.86$).

Table 3

Study 2: Anticipated emotions and loan intention by groups

	Anticipated emotions		Loan intention		<i>r</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Hedonic product (furniture)					
Belief in adaptation (n = 40)	3.36	0.61	3.62	0.51	.01
No belief in adaptation (n = 40)	3.76	0.66	3.59	0.78	.46**
Utilitarian product (car)					
Belief in adaptation (n = 40)	3.23	0.67	3.86	0.60	.27*
No belief in adaptation (n = 40)	3.38	0.86	3.71	0.78	.50**

Note. * $p < .05$, ** $p < .01$, one-sided

Table 4

Study 2: Loan intention regressed on product type, belief in adaptation and anticipated emotions

	<i>B</i>	<i>SE</i>	β	<i>p</i>
Intercept	3.67	0.05		<.01
Product type	-0.15	0.05	-.22	<.01
Belief in adaptation	0.10	0.05	.14	.06
Product type* belief in adaptation	0.01	0.05	.01	.87
Anticipated emotions	0.31	0.07	.33	<.01
Anticipated emotions*product type	-0.03	0.07	-.04	.64
Anticipated emotions* belief in adaptation	-0.18	0.07	-.19	.02
Anticipated emotions* product type* belief in adaptation	-0.08	0.07	-.09	.26

Note. Product type: 1 = hedonic, -1 = utilitarian; belief in adaptation: 1 = belief in adaptation, -1 = no belief in adaptation; Anticipated emotions: not at all – extremely, five-point scale, centered on the mean ($M = 3.43$).

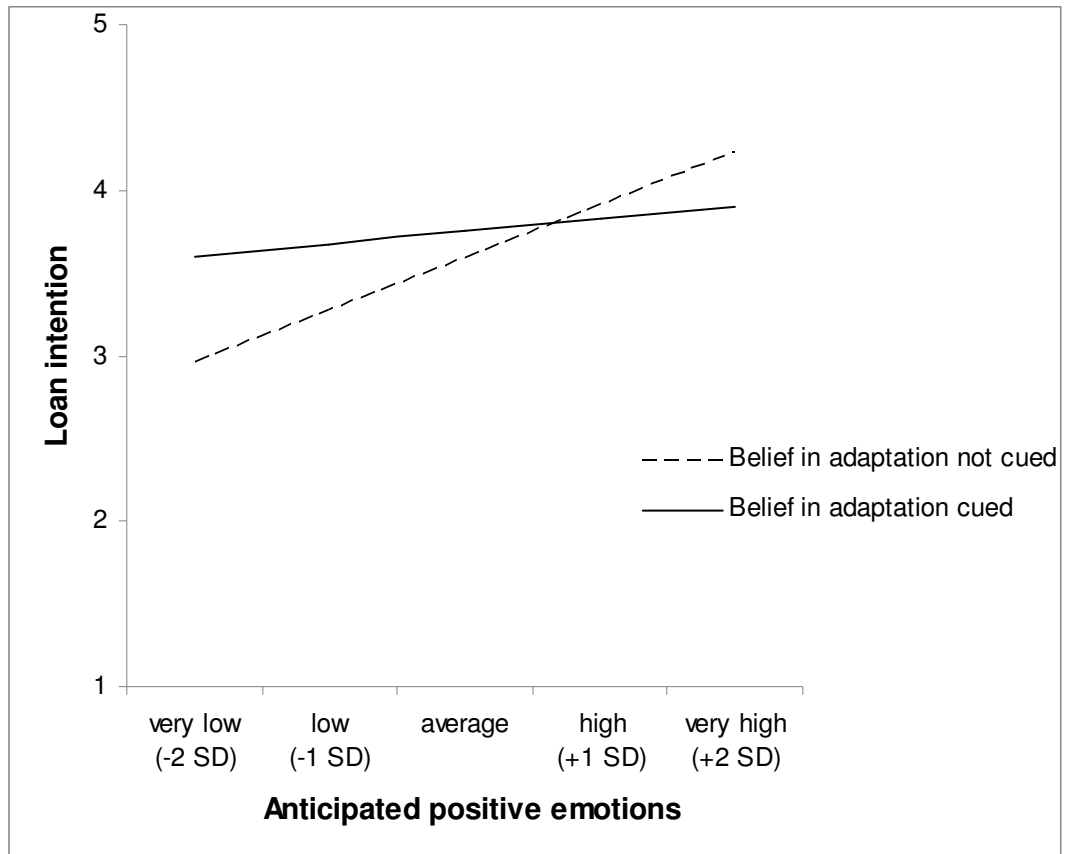


Figure 1. Study 2: Relationship between anticipated emotions and loan intention by belief in adaptation

Curriculum Vitae

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Education

Since Sept. 07 UNIVERSITY OF VIENNA, Dissertation in Psychology
Title of dissertation: Affective forecasting and consumer behavior

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- June – July 07 GFK NOP MEDIA, London, Media Research, Internship
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- April – June 05 VIENNA UNIVERSITY OF APPLIED SCIENCE, Human resources department, Internship
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- Feb. – Aug. 00 LANCASTER BOTANICAL GARDEN, Cartago, Costa Rica
Volunteer, community service program – American Field Service (AFS)

Qualification work

- Pollai, M. (2007). *Validierung von LAsO (Lernen – Anwenden – systematisch Ordnen) bezüglich kognitiver Stile*. Unveröffentlichte Diplomarbeit, Universität Wien, Wien.
[Validation of LAsO (Learning – Applying – systematically Organizing) in respect of cognitive styles]

Publications

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- Pollai, M., Hoelzl E., & Possas, F. (in press). Consumption-related emotions over time: Fit between prediction and experience. *Marketing Letters*, doi 10.1007/s11002-009-9090-5.
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- Pollai, M., Hoelzl E., Hahn, L., & Hahn, A. (submitted). Influence of anticipated emotions on consumer decisions: The moderating role of product type and belief in adaptation. *Journal of Psychology*.
- Hahn, L., Hölzl, E., & Pollai, M. (submitted). The effect of payment type on product-related emotions: Evidence from an experimental study. *Journal of Socio-Economics*.

Conference Presentations

- Pollai, M., Hoelzl, E., & Neulinger, S. (2008). Emotionale Kreditbelastung von Hauseigentümern: Übereinstimmung von Vorhersage, Erinnerung und tatsächlichem Erleben. 8. Tagung der Österreichischen Gesellschaft für Psychologie, Linz, Österreich, April 24-26, 2008.

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- Pollai, M., Stonitsch, N., & Hoelzl, E. (2008). Fit between prediction and actual experience of product-related emotions. IAREP/SABE World Meeting 2008, Rome, Italy, September 3-6, 2008.
- Pollai, M., Hoelzl, E., & Possas, F. (2009). Prediction bias and hindsight bias of consumption-related emotions. Subjective Probability, Utility and Decision Making SPUDM 22, Rovereto, Italy, August 23-27, 2009.
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- Pollai, M., Hoelzl, E., Hahn, L., & Hahn, A. (2010). Der Einfluss vorhergesagter konsumbezogener Entscheidungen auf Konsumententscheidungen. 9. Tagung der Österreichischen Gesellschaft für Psychologie, Salzburg, Österreich, April 8-10, 2010.

Teaching activity

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Organization of Conferences

- 2009 6th Meeting of the "Work- and Organizational Psychology" Division of the German Society of Psychology, Vienna, Austria, September 9 – 11, 2009. (Member of organizing committee)

Awards and Grants

- 2003 Performance Scholarship for extraordinary achievements by the Austrian Government
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- 2008 Research Scholarship for scientific work by the University of Vienna

Reviewing

2009 Ad hoc – Reviewer for Journal of Economic Psychology

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