



EJM
45,7/8

Modeling regret effects on consumer post-purchase decisions

1068

Received February 2009
Revised June 2009
Accepted August 2009

My Bui

*Department of Marketing, Loyola Marymount University, Los Angeles,
California, USA*

Anjala S. Krishen

Department of Marketing, University of Nevada, Las Vegas, Nevada, USA, and

Kenneth Bates

Campbell School of Business, Berry College, Mount Berry, Georgia, USA

Abstract

Purpose – The purpose of this paper is to assess how regret affects consumer satisfaction levels, extent of rumination, and brand-switching intention. The paper also seeks to examine any mediating effects between regret and rumination that can be found due to consumers' negative emotions.

Design/methodology/approach – A purchase-decision scenario was presented to 125 undergraduate students. A between-subjects experimental design was conducted and structural equation modelling was utilized to evaluate the model fit.

Findings – The results indicate that regret decreases consumer satisfaction level and increases brand-switching intention. Negative emotion was found to demonstrate an indirect effect between regret and extent of rumination. The findings also suggest that negative emotion acts as a partially mediating variable between the effect of satisfaction levels on extent of rumination and the effect of regret on satisfaction levels.

Practical implications – This study emphasizes the importance of post-purchase consumer satisfaction. Marketers must pay particular attention to both regret and negative emotion toward purchase decisions. By understanding how specific recourse can be taken to mitigate regret, negative emotions, and ruminative thinking, firms can potentially enhance a brand's image and instil brand loyalty.

Originality/value – This research further validates existing research regarding regret and consumption, while introducing the concept of rumination into the marketing literature. Marketers will have a better understanding of how regret, negative emotions, and rumination can play a role in post-purchase consumption behaviours.

Keywords Compulsory purchase, Marketing, Consumers, Consumer satisfaction

Paper type Research paper



Introduction

Marketing managers are always interested in achieving a better understanding of the influences of post-purchase behavior; namely, what brings consumers back for more? Under what circumstances are they satisfied with their chosen brands, and when do they regret their decisions when turning down an alternative? While regret theory was first introduced among economic decision theorists to help explain irrational decision-making (Loomes and Sugden, 1982), more recently, marketing researchers

have been using it to garner greater insight into consumption behaviors. For example, regret has surfaced both as part of a propensity to observe model (Simpson *et al.*, 2008) and a motivational process model (Dholakia, 2001) in terms of minimizing risk. Likewise, Watson and Spence (2007) discuss regret in terms of post-purchase coping strategies from a consumer emotions perspective.

The purpose of this paper is to understand the relationships between consumer regret and outcome variables such as satisfaction levels, extent of rumination, and brand switching intention. Furthermore, the extent of negative emotion is examined in order to determine any additional indirect effects regret may have on satisfaction and/or ruminative thinking. A key contribution of the model presented in this paper is that it tests both construct validity and relationships among variables based on fundamental marketing, psychology, and consumer behavior theories. This allows for a more thorough understanding of the measurement model and conceptual model individually as well as when they are tested together. The analysis provided for the structural equation model allows for a stronger test of construct measurement and confirms existing theoretical models. Further, the concept of rumination exists within the psychology literature, however this phenomena has yet to be examined within the consumer research literature. Considering that consumers ruminate every day and throughout the day, rumination is an important concept that desperately needs attention within marketing to better understand consumption patterns. One of the key contributions of this paper is that we introduce the concept of rumination into the consumer research literature and examine its impact in a decision-making context.

Literature review

According to Landman (1993), regret is defined as “. . . a more or less painful judgment and state of feeling sorry for misfortunes, limitations, losses, shortcomings, transgressions, or mistakes”. The initial feeling of regret prompts an assessment of whether or not the consumer can amend a given situation and then facilitates the consumer’s use of coping strategies. Prior research has shown that regret has a direct and negative influence on customer satisfaction levels (Inman *et al.*, 1997; Taylor and Schneider, 1998; Tsiros and Mittal, 2000), a direct and negative effect on repurchase intentions (Tsiros and Mittal, 2000), and a facilitative effect on promoting proactive coping strategies such as brand switching behavior (Zeelenberg and Pieters, 1999). However, sparse research explains the relationships between regret, ruminative thinking, and negative emotions.

With regret acting as such a powerful emotion, it is likely to impact the extent of rumination experienced by the consumer. Rumination refers to several varieties of recurrent, event-related, thinking (Martin and Tesser, 1996), and it occurs when consumers experience continued repetitive thoughts without the presence of an immediate environmental stimulus. Ruminative thinking may include sense making, problem solving, reminiscence, or anticipation of a consequence; literature suggests that it is largely a maladaptive process for individuals (Rothermund, 2003). It has been shown in some cases to interfere with an individual’s capacity to achieve certain goals (Brunstein and Gollwitzer, 1996). Over time, extensive ruminative thinking can prolong negative emotions and contribute to depression (Pyszczynski and Greenberg, 1987). Considering the numerous negative consequences of consumer regret, it is crucial to corroborate existing research with respect to satisfaction levels and brand switching

behaviors while additionally examining the effect of regret on negative emotions and ruminative thinking.

Furthermore, in terms of branding, literature suggests that the impact of brand performance is integral to the determination of brand satisfaction (Anderson and Sullivan, 1993; Yi, 1990). However, findings also suggest that brand performance is not sufficient and the examination of foregone brand alternatives is also needed for understanding post-purchase decision-making (Inman *et al.*, 1997; Tsiros and Mittal, 2000). When consumers perceive that an alternative brand selection would have yielded greater satisfaction, even when the chosen brand performs well, a feeling of regret is experienced. This feeling has been shown to have a negative impact on satisfaction levels (Inman *et al.*, 1997), and in some cases, it may even lead to brand switching. Thus, the impact of regret is of great importance to marketers who are interested in developing brand loyalty and fostering long-term relationships among consumers.

The paper is organized as follows. It begins with a brief review of regret regulation theory as the key theoretical focus of this paper and how it relates to consumer satisfaction levels. Next, a proposed model of regret is introduced. The model and its assumptions are then tested via structural equation modeling. Finally, the implications of the regret model are discussed along with suggestions for potential future research.

Theoretical basis and conceptual framework

The role of regret and the theory of regret regulation

When consumers reflect on and evaluate the decisions they have encountered, comparisons are made between the experienced outcomes and the outcomes that would have occurred under a different choice. They ask themselves questions such as: “Should I have purchased the Sony television rather than the Samsung?”. These types of comparisons are quite common in contemporary society where consumers have a seemingly limitless set of options before making a selection (Simpson *et al.*, 2008; Shankar *et al.*, 2006). However, decisions can become unpleasant when consumers feel they have made an incorrect choice (Landman, 1987). Whenever a consumer perceives that a foregone alternative would have yielded a better outcome, a feeling of regret is experienced (Boles and Messick, 1995; Landman, 1987). Even if a consumer determines that his decision was the best alternative at the point in time a choice was made, regret can still be experienced when the consumer believes another option would have yielded better results (Loomes and Sugden, 1982).

Regret may even manifest itself in situations when consumers are satisfied with their present selections. When comparing two alternatives and their respective outcomes, the satisfaction felt with a current selection is not necessarily important; instead, the determinant factor is whether the chosen alternative leads to a better or worse outcome than other available options. Similarly, Syam *et al.* (2008) present a model with respect to customized products and suggest that increased regret aversion can create “regretfully loyal customers” – i.e. those choosing a standard product in place of a customized product.

Regret also stems from situations where the choice of inaction, or staying with the status quo, leads to an outcome less desirable than what would have been experienced through an alternative decision (Gilovich and Medvec, 1995). As discussed by Gilovich and Medvec (1995), the perception of incorrect actions may produce regret more frequently than inactions, but regret due to inaction does occur. Over time, the regret

experienced due to untraveled paths may be significantly greater than for those active decisions that were believed to be wrong. Additionally, research has shown that regret due to actions and inactions differ by whether it occurs in the short-term or long-term (Abendroth and Diehl, 2006; Kahneman, 1995; Gilovich *et al.*, 1998). Short-term regrets are immediate or direct reactions to a specific outcome experienced while long-term regrets are more passively experienced as thoughts or fantasies of what could have occurred (Kahneman, 1995). Therefore, regret may stem from decisions related to actions and inactions as well as being either short-term or long-term in nature (Keinan and Kivetz, 2008).

The theory of regret regulation (Zeelenberg and Pieters, 2007) suggests that consumers are regret adverse; therefore, their choices are made based on what they believe will result in minimal amounts of future regret. Research shows that the anticipation of regret can systematically influence choice (Greenleaf, 2004; Hetts *et al.*, 2000; Simonson, 1992). Based on the propositions of the theory of regret regulation, consumers evaluate multiple options and make consumption choices in the present to manage potential regret emotions in the future. Research suggests strong relationships between regret and satisfaction levels (Heitmann *et al.*, 2007; Tsiros and Mittal, 2000) as well as switching behaviors (Inman and Zeelenberg, 2002; Zeelenberg and Pieters, 1999). Additionally, negative affect and emotion have also been linked to the effects of rumination (Lyubomirsky and Nolen-Hoeksema, 1993).

Control theory and rumination

The self-evaluative mechanism posited by Carver and Scheier's (1981, 1982) control theory partially explains how rumination plays a significant role in influencing behavior. Control theory suggests that consumers each have an evaluative feedback system that exists to help move them toward achieving specific consumption goals. Combined with Martin and Tesser's (1989, 2006) goal progress theory of rumination, this theory proposes that rumination on a particular topic helps consumers progress toward their ideal goal until the discrepancy between their actual and ideal goals becomes nonexistent. Thus, when a consumer's goal is to reduce any potential regret from a purchase decision, the consumer will be mindful of that goal as he makes his choice. Currently, limited research has examined the effects of regret and rumination within the marketing and consumption context. Drawn from the goal progress theory of rumination (Martin and Tesser, 1989, 2006), it can be inferred that rumination may influence consumers' satisfaction levels and brand switching intentions.

Prior research has examined the effect of regret on satisfaction levels (Tsiros and Mittal, 2000) and brand switching behaviors (Zeelenberg and Pieters, 1999); however, limited research has examined both the measurement and conceptual theoretical model while including the impact of regret on rumination. This paper includes conceptual models tested in the past, while bringing into the consumer marketing literature a key component of the decision making process – rumination – to be tested as a part of a more refined conceptual theoretical model.

Thus, this paper introduces a model that includes the effect of regret on satisfaction while examining the concepts of rumination, negative emotion, and brand switching behavior. Figure 1 presents the proposed model, which demonstrates the effects of regret on the endogenous variables of negative emotion, satisfaction level, rumination, and brand switching intention. The structural model proposes that in addition to the

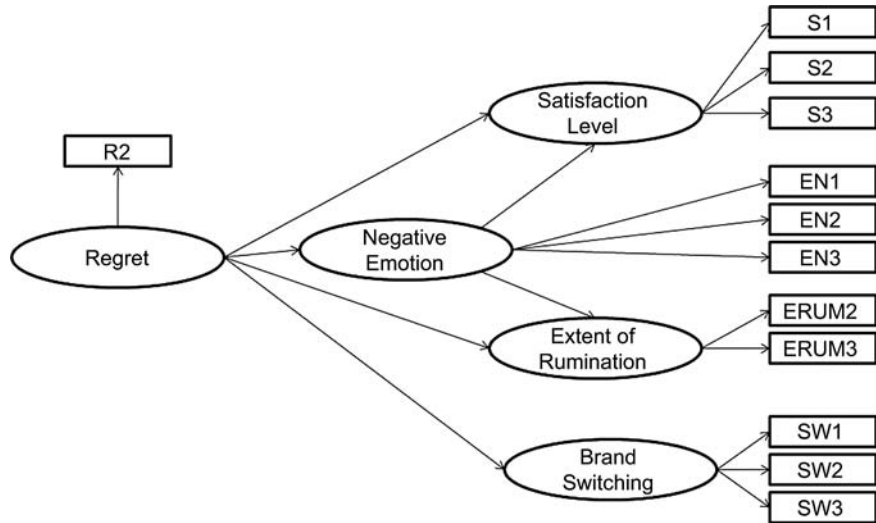


Figure 1.
The original structural model for the effects of regret on consumer decision making

direct effects of regret, the extent of negative emotion may also act as a mediating variable. The model shows that the extent of negative emotion mediates the effect of regret on satisfaction levels and the effect of regret on extent of rumination. A further discussion of the endogenous variables and model hypotheses follows.

Extent of satisfaction level

The expectation-disconfirmation model posits that consumer satisfaction levels are based on initial expectations of specific product attributes that are later confirmed or disconfirmed (van Raaij, 1991). When performance is equal to or higher than what is expected, consumers will be satisfied; if performance is lower than expected, consumers will be dissatisfied. Numerous studies have shown a direct and negative link between regret and satisfaction levels (Inman *et al.*, 1997). In particular, regret dampens satisfaction levels and is directly related to reduced repurchase intentions (Inman *et al.*, 1997; Zeelenberg and Pieters, 1999). However, according to Medvec *et al.* (1995), even when expectations are validated and consumers should feel an acceptable level of satisfaction, comparing an obtained outcome to an ideal outcome will diminish satisfaction levels because of induced regret. In the present research, we discuss satisfaction levels in terms of the purchase decision, often called decision satisfaction, in the context of choice literature. Supporting our framework, the relationship between regretful decisions and decreased levels of post-choice decision satisfaction has been well documented (Heitmann *et al.*, 2007; Patrick *et al.*, 2009; Darke *et al.*, 2006). In particular, introducing regret into a decision making process can lead to a decrease in satisfaction level for corresponding purchase decisions. Thus, we propose:

H1. Regret will be negatively related to the experienced satisfaction level.

Extent of rumination

Studies suggest that there is a significant positive relationship between regret and the amount of rumination experienced (Inman *et al.*, 1997; Martin and Tesser, 1996;

Zeelenberg and Pieters, 1999). Minimal research has been conducted to fully explain this relationship, but previous work has shown that negative emotional consequences do stem from rumination (Lyubomirsky and Nolen-Hoeksema, 1993). Extant literature suggests that rumination has multiple negative consequences (Lyubomirsky *et al.*, 1999), which are often an artifact of the increased level of rumination experienced when coping with regret. More recent research in the personal selling domain from a salesperson perspective shows a direct relationship between regret for a lost sale and the experience of post-opportunity ruminations (Verbeke and Bagozzi, 2002). A particular type of rumination, referred to as processing rumination, is thought to contribute to recovery from a negative incident, such as regret (Segerstrom *et al.*, 2003). Therefore, it is expected that:

H2. Regret will be positively related to the amount of rumination experienced.

Brand-switching intentions

Evaluations of a brand are made from a variety of reference information such as price standards (Vaidyanathan, 2000), contrasting effects of dual brands (Levin, 2002), and previous satisfaction experiences (Inman *et al.*, 1997). Dissatisfaction is directly related to regret (Inman *et al.*, 1997), and regret is directly related to switching behavior (Zeelenberg and Pieters, 1999). Regret triggers an assessment of whether or not one can alter the circumstances of a situation, which then initiates the consumers' use of coping strategies. Coping is defined as "the cognitive and behavioral efforts made to master, tolerate, or reduce external and internal demands and conflicts among them" (Folkman and Lazarus, 1980). According to Pearlin and Schooler (1978), coping efforts serve to both manage the sources of stress (i.e. problem-focused coping) and to regulate those stressful emotions (i.e. emotion-focused coping).

Problem-focused coping directs attention to ways of correcting a decision, and therefore causes consumers to psychologically undo the purchase. This may lead to the return of a product or, in the future, a switch to another brand. According to Conway and Terry (1992), "the effectiveness of the different coping strategies will vary as a function of the extent to which the event is appraised to be controllable". McCrae (1984) recognizes that these stress appraisals can either be referred to as threat appraisals or challenge appraisals. Threat appraisals refer to losses that are potential and anticipated, whereas challenge appraisals refer to an opportunity for the mastery of a positive outcome (i.e. switching brands). In the service context of win-back offers, Tokman *et al.* (2007) show that by offering a win-back promotion, former service providers can induce switching regret and cause consumers to want to return to their original service provider. The tie between regret and brand switching is well documented; induction of regret increases the intentions of switching brands for future purchase scenarios. Based on the previous rationale, we propose that:

H3. Regret will be positively related to brand switching intention.

Extent of negative emotion

Generally, people are pleasure seekers, and thus will seek out different sources within their environments to achieve this regulated state (Panksepp, 1998). Consumer behavior research indicates that negative emotions can result from events that are relevant to but incongruent with consumption goals (Menon and Dube, 2007; Lerner

and Keltner, 2000). Regret due to a purchase decision would be an example of such an incongruent occurrence. In a seminal study regarding the measurement of emotions in the consumption context, Richins (1997) began with an open-ended questionnaire to identify 175 emotions. Using multi-dimensional scaling, this reduced the list to several dominant consumption-related dimensions. Of relevance to the present study, the anger set of consumption emotions is identified as frustrated, angry, and irritated. As shown in Reynolds *et al.* (2006), being frustrated and upset are interchangeable in the within-search negative emotion consumption context. Further, Yi and Baumgartner (2004) define negative emotions in terms of anger, disappointment, regret, and worry, in addition to showing that different coping strategies pertain to these negative emotions. For our research, we combine the findings of Richins (1997) and Reynolds *et al.* (2006) to identify three key items for this construct, namely the experiences of being upset, angry, and irritated. Particularly, consumers who are able to mitigate their feelings of regret are able to experience less negative emotions toward a given purchase decision. The amount of negative emotions felt plays an instrumental role in the magnitude of satisfaction levels and the extent of rumination experienced in the consumption process (Martin and Tesser, 1996). In a service context, Bougie *et al.* (2003) show that negative emotion, such as anger, can serve as a mediator between outcome measures such as satisfaction and behavioral response to failures. Therefore, the extent of negative emotions felt can help to better explain the relationship between regret and satisfaction levels as well as that between regret and the extent of experienced rumination. Therefore, we propose that:

- H4. The extent of negative emotion felt toward the purchase decision will partially mediate the relationship between regret; and the extent of satisfaction levels. Negative emotion will also partially mediate the relationship between regret; and the amount of rumination experienced.

Methodology

Design

The study is a 2 (regret of brand switching vs. regret of not switching brands) \times 2 (short-term vs long-term) between-subjects factorial design with four experimental conditions (see Appendix 1). For example, in one condition, subjects experience a negative outcome (i.e. regret) due to the action of switching laptop brands within a short period of time (i.e. within the past week). Due to inconsistencies in existing research pertaining to the manipulation of the short-term versus long-term factor, this specific manipulation is only exploratory in nature regarding this design. Therefore, only the factor of regret of switching or not switching brands is included in the testing of the structural model.

Sample and procedures

Procedures of this study are adapted from the experimental design of Kahneman and Tversky (1982). A purchase-decision scenario is presented to 125 undergraduate students in the southern part of the USA. The subject age ranges from 19 to 32 years (mean of 22) and consists of a 54 percent female sample population. Each subject is randomly assigned to one of four conditions. During the study, subjects were instructed to read the given scenario and proceed with the questions. Following the given scenario, measures of regret and manipulation checks were obtained. Subjects

took approximately 15 minutes to complete the questionnaire. After the study was completed, subjects were debriefed, thanked, and dismissed.

Measures

Multi-item scales were used to measure all constructs (see Appendix 2 for item measures).

Regret. A three-item construct was used to measure regret as outlined in previous research (Tsiros and Mittal, 2000; Oliver, 1997). Items included: "I feel sorry for choosing to switch (not switch) brands"; "I regret choosing to switch (not switch) brands"; and "I should have chosen the alternative laptop brand". The items were rated on a seven-point likert scale ranging from 1 (strongly disagree) to 7 (strongly agree), with Cronbach's alpha of 0.87.

Extent of satisfaction level. Adapted from previously validated scales measuring satisfaction levels (Crosby and Stephens, 1987; Eroglu and Machleit, 1990; Spreng *et al.*, 1996), the measure of extent of satisfaction level was measured using a three-item construct consisting of the following items: "To what extent would you feel satisfied with your purchase decision?"; "To what level would you feel content with your purchase decision?"; and "To what degree would you feel pleased with your purchase decision?". The three items were measured using a ten-point likert scale ranging from 1 (minimally satisfied) to 10 (highly satisfied) with a Cronbach's alpha of 0.98.

Extent of rumination. Rumination has been moderately researched and validated within the psychology literature; self-reported scales exist to measure the construct of ruminative response styles (Nolen-Hoeksema and Morrow, 1991; Roberts *et al.*, 1998). Currently however, no research has examined the extent of rumination construct within the consumer research literature. Due to this constraint and the potential for misconception within the survey, rumination was specifically defined in the survey as "several varieties of recurrent [event-related] thinking, including making sense, problem solving, reminiscence, and anticipation" (Martin and Tesser, 1996). There has been substantial debate about whether single-item measures should be used to measure complex psychological constructs (Wanous *et al.*, 1997), but very recent research shows that, where appropriate, single-item measures are sufficient (Bergkvist and Rossiter, 2007). Further, many marketing researchers have used single-item measures of self-reports, for example, for self-reported driving alertness following a public service announcement (Potter *et al.*, 2006), for perceptions of disease risk based on food consumption (Kozup *et al.*, 2003), and for measurement of satisfaction with a firm (Bendapudi and Leone, 2003). Due to the on-going discussions regarding single-item measures, we chose to use three relatively synonymous terms (level, degree, and extent, see <http://thesaurus.reference.com/browse/degree>), to ensure a higher degree of within-subject reliability and allow for follow-up reliability checking with Cronbach's alpha. Three items were used to measure extent of rumination with measures consisting of: "To what extent would you ruminate about this experience?"; "To what level would you ruminate about this experience?"; and "To what degree would you ruminate about this experience?". The likert scale for the three items ranged from 1 (minimal rumination) to 9 (high rumination), and Cronbach's alpha for this measure was 0.98.

Brand-switching intentions. The brand switching intentions multi-item measure was adapted based on previously validated measures (Chattopadhyay and Basu, 1990; Gotlieb and Sarel, 1991). Brand switching intention is measured using a 3-item

construct consisting of the following items: “Based on the scenario, how likely are you to switch to another brand of laptop computer in the future?”; “Based on the scenario, how probable are you to switch to another brand of laptop computer in the future?”; and “Based on the scenario, how plausible would it be for you to switch to another brand of laptop computer in the future?”. The scale for the three likert items ranged from 1 (very unlikely to switch) to 7 (very likely to switch), and Cronbach’s alpha for this measure was 0.91.

Extent of negative emotion. Extent of negative emotion is measured using a 3-item construct consisting of the following items: “To what extent would you feel angry with your purchase decision?”; “To what level would you feel irritated with your purchase decision?”; and “To what degree would you feel upset with your purchase decision?” These items were derived from previous research on negative emotions with respect to consumption contexts (Richins, 1997; Reynolds *et al.*, 2006). The likert scale for the three items ranged from 1 (minimal negative emotion) to 9 (high negative emotion) with a Cronbach’s alpha of 0.94.

Data analysis

Manipulation checks for exogenous variables

Analysis of variance was performed to ensure that the manipulation of regret and time were successful. There was a significant difference between the regret of switching and not switching brand conditions ($F(1, 123) = 8.41, p < 0.05$), with means in the appropriate directions ($M = 5.36$ vs $M = 4.73$, respectively).

Analyses were conducted in AMOS 5.0 using the maximum likelihood estimation method. For all analyses, χ^2 and p -values along with Hu and Bentler (1999) recommended cut-off levels of CFI, RMSEA, PCLOSE, and SRMR were used to determine adequate model fit. According to Gerbing and Anderson (1988), the measurement model should be assessed initially for construct validity. However, before assessing for construct validity, issues dealing with missing data, outliers, and non-normality must be rectified if present.

There were some cases of missing data; however, these consisted of less than 5% of the data. To satisfy the missing data criteria, mean imputations were used to replace all missing data found (Kline, 2005). Additionally, there were some instances of outliers (see Table I for assessment of outliers and observation deletions). Observations 7, 86, and 4 were deleted as recommended by Byrne (2001) for having the widest gaps and Kline (2005) for having $p^2 < 0.001$. Generally, as outliers were deleted, χ^2 decreased,

	No deletion	Deleted 7	Deleted 86	Deleted 4
Chi-square	135.055 *	133.454 *	136.780 *	132.076 *
p -value	0.000 *	0.000 *	0.000 *	0.000 *
CFI	0.974	0.975	0.974	0.976
SRMR	0.035	0.035	0.035	0.035
RMSEA	0.074 *	0.074 *	0.076 *	0.073 *
PCLOSE	0.038 *	0.044 *	0.029 *	0.049 *

Table I.
Assessment of outliers
and observation deletions

Note: *Indicates poor model fit

while parameter estimates and standard errors stayed fairly close. After the deletion of observations 7, 86, and 4, there were no more severe outliers (see Table I).

There was no indication of non-normality. All skewness and kurtosis measures were less than the recommended absolute value of 2 (Kline, 2005), the Bollen-Stine χ^2 and the implied model p -value difference was within reason (see Table II), and the standard errors (SE-SE and SE-bias) were less than 0.005 at 1,000 samples for the Monte Carlo bootstrap. Therefore, it is assumed that there were no problems with non-normality in the data set.

Measurement assessment of construct validity

Convergent and discriminant validity were both assessed in order to determine construct validity. In assessing for convergent validity, the measurement model was first tested for model fit. After item deletion and adequate model fit were achieved, lambdas were checked for significance and size (Gerbing and Anderson, 1988). Furthermore, the reliability and average variance extracted for each construct was calculated. In determining discriminant validity, both pair-wise comparison and the Fornell-Larcker test were used.

Assessing convergent validity

In assessing model fit for the full measurement model, all constructs were examined simultaneously. The modification indices, standard residual covariance matrix, and squared multiple correlations were referenced to determine which items should be removed in order to improve model fit. A total of three items were deleted from the full model before an acceptable model fit was attained.

The full model (see Figure 2) did not show a good fit considering χ^2 (132.076); p -value (0.000); CFI (0.976); RMSEA (0.073); PCLOSE (0.049), and SRMR (0.0345). Based on examination of the modification indices, a problem was identified with cross-loadings between ERUM1 and BS (MI = 10.159). Further examination of the standardized residual covariance matrix did not show any covariance above the absolute value of 2, but the squared multiple correlations indicated that ERUM1 explained the least amount of variance. So, from the extent of rumination scale, one item, question ERUM1 was deleted (see Figure 3).

Deletion of ERUM1 increased model fit. However, it still did not represent an adequate model with χ^2 (97.299); p -value (0.009); CFI (0.983); RMSEA (0.061); PCLOSE (0.238); and SRMR (0.0373). On examination of the modification indices, a problem was identified with cross-loadings between ERUM2 and R3 (MI = 7.542). Further evidence from the standardized residual covariance matrix indicated that R3 covaried with item S3 (-1.253), and the squared multiple correlation identified that R3 explained one of the least amounts of variance (0.725). Therefore, R3 was deleted.

After deleting R3, the model exhibited a better fit; however, it was still not at an acceptable fit since χ^2 (74.838); p -value (0.039); CFI (0.988); RMSEA (0.055); PCLOSE

	Chi-square	p -value
Implied model	132.076	0.000
Bollen-Stine	132.076	0.000
Chi-square diff	0.000	

Table II.
Maximum likelihood
bootstrap: Bollen-Stine
(1,000 samples)

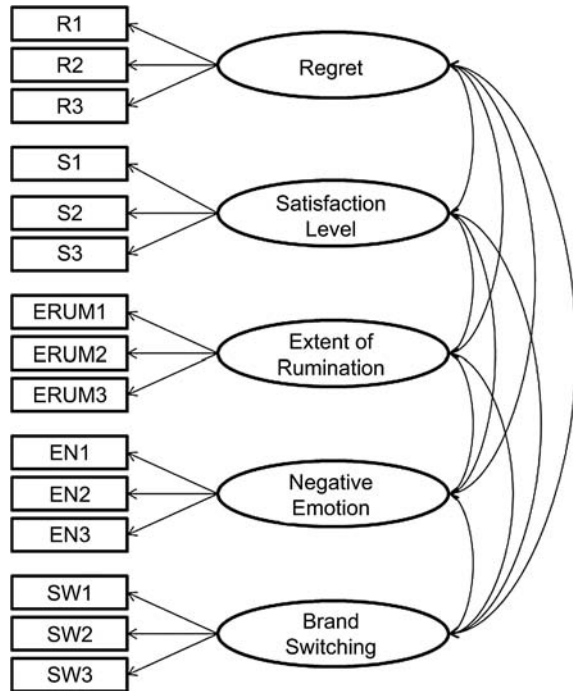


Figure 2.
The full measurement model for the effects of regret on consumer decision making

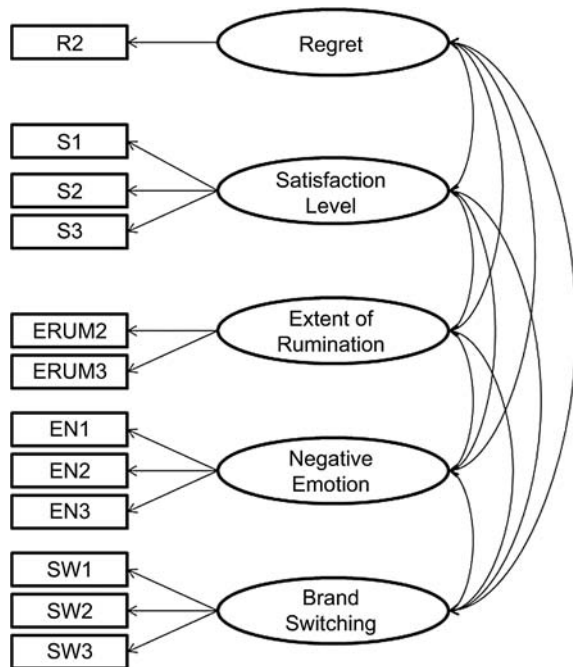


Figure 3.
The modified measurement model for the effects of regret on consumer decision making

(0.383); and SRMR (.0356). Based on examination of the modification indices, a problem was identified with correlated error terms between err1 and eesw3 (MI = 5.784), ersw3 (MI = 4.797), and errum2 (MI = 4.273). Further examination of the standardized residual covariance matrix did not indicate any covariance above the absolute value of 2, and the squared multiple correlations showed that R1 explained an adequate amount of variance. However, it was determined that the issue with the correlated error terms was problematic enough to necessitate the elimination of R1.

After deleting the three items, the model exhibited adequate fit with χ^2 (52.853); *p*-value (0.197); CFI (0.995); RMSEA (0.038); PCLOSE (0.666); and SRMR (0.0311). The final modified measurement model is shown in Figure 4. To further test for convergent validity, the composite reliability was assessed based on the composite ρ and average variance extracted for both unstandardized and standardized β s. Reliability was adequate with all composite ρ s above 0.70 and all average variances extracted above 0.50 (see Table III). Since the regret construct was reduced to a one-item measure, the composite rho and average variance extracted could not be determined; however,

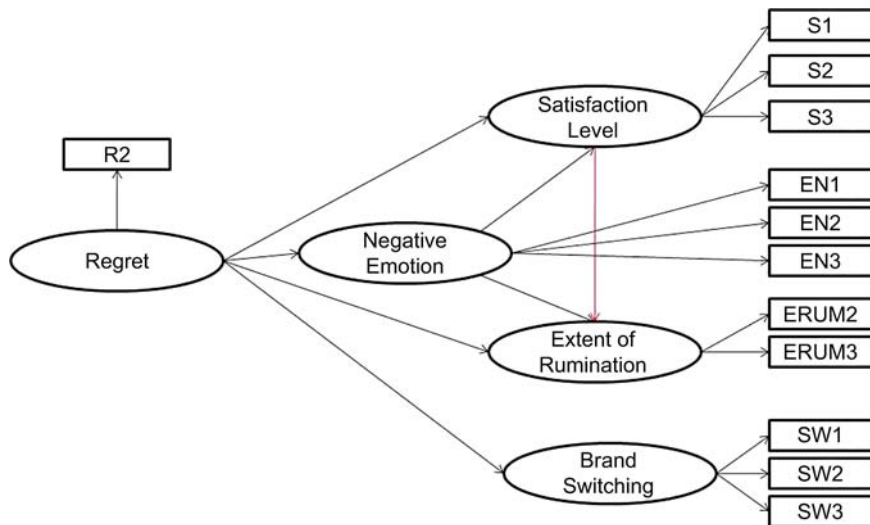


Figure 4.
The alternative structural
model of the effects of
regret on consumer
decision making

	Composite Rho		AVE	
	Unstandardized	Standardized	Unstandardized	Standardized
Regret *	N/A	N/A	N/A	N/A
Satisfaction	0.912	0.913	0.777	0.778
Rumination	0.973	0.975	0.948	0.951
Negative emotion	0.948	0.948	0.86	0.86
Brand switching	0.975	0.971	0.93	0.932

Note: * “Regret” was paired with other variables to determine whether there was a problem with major cross-loadings, since “regret” became a one-item measure

Table III.
Test of convergent
validity

regret was paired with other variables to determine if there were any problems with cross-loadings.

The final step in assessing convergent validity was assessing the lambda values. As seen in Table IV, all lambda values were larger than the recommended value of 0.5 by Hair *et al.* (1998) and were significant at $p < 0.001$.

1080

Assessing discriminant validity

To determine discriminant validity, both the pairwise χ^2 difference test and the Fornell-Larcker test were performed. The χ^2 difference test indicated that there was a significant improvement from the unconstrained model over the constrained model for each of the pairwise comparisons (see Table V).

Furthermore, the Fornell-Larcker test demonstrated discriminant validity. Based on the comparisons between the shared variance and the average variance extracted, the shared variance between constructs and their measures were greater than the comparison between any two different constructs (see Table VI).

Assessing the structural model

After attainment of a validated measurement model, the structural model and proposed hypotheses were tested. The original model (see Figure 1) exhibited some potential fit

Table IV.
Lambda values

	Estimate	S.E.	C.R.	P
R2	1.000			
S1	1.127	0.08	14.142	***
S2	0.888	0.063	14.142	***
S3	0.892	0.068	13.080	***
ERUM2	0.907	0.058	15.703	***
ERUM3	1.103	0.07	15.703	***
SW1	0.99	0.034	28.805	***
SW2	1.010	0.035	28.805	***
SW3	0.955	0.042	22.832	***
EN1	1.025	0.057	18.033	***
EN2	0.976	0.054	18.033	***
EN3	0.948	0.052	18.141	***

Table V.
Discriminant validity test: pairwise comparisons

	Constrained Chi-Square	Unconstrained Chi-Square	χ^2 diff	df diff	p-value
Regret and satisfaction	210.547	7.077	203.47	1	0.000
Regret and negative emotion	301.008	6.041	294.967	1	0.000
Regret and brand switching	545.691	0.497	545.194	1	0.000
Satisfaction and rumination	271.872	3.829	268.043	1	0.000
Satisfaction and negative emotion	206.005	4.701	201.304	1	0.000
Satisfaction and brand switching	248.818	3.503	245.315	1	0.000
Rumination and negative emotion	244.672	4.735	239.937	1	0.000
Rumination and brand switching	268.594	4.254	264.34	1	0.000
Negative emotion and brand switching	339.093	6.158	332.935	1	0.000

	Shared variance	AVE (regret)	AVE (satisfaction)	AVE (rumination)	AVE (negative emotion)	AVE (brand switching)	Consumer post-purchase decisions
Regret and satisfaction	0.226	N/A	0.778				1081
Regret and rumination	0.018	N/A		0.951			
Regret and negative emotion	0.264	N/A			0.860		
Regret and brand switching	0.042	N/A				0.932	
Satisfaction and rumination	0.000		0.778	0.951			
Satisfaction and negative emotion	0.261		0.778		0.860		
Satisfaction and brand switching	0.074		0.778			0.932	
Rumination and negative emotion	0.227			0.951	0.860		
Rumination and brand switching	0.023			0.951		0.932	
Negative emotion and brand switching	0.103				0.860	0.932	

Table VI.
Discriminant validity test: Fornell-Larcker test

problems with χ^2 (66.615); p -value (0.048); CFI (0.989); RMSEA (0.055); PCLOSE (0.389); and SRMR (0.0713). Modification indices were not given since there were missing data; therefore, covariances from the CFA model were examined to determine where there might be significant correlations among the dependent variables. Although the correlation between extent of satisfaction level and amount of rumination experienced were not significant ($p > 0.05$), inserting a direct path from extent of satisfaction level to extent of rumination experienced significantly improved the model fit: χ^2 (57.992); p -value (0.153); CFI (0.994); RMSEA (0.041); PCLOSE (0.621); and SRMR (0.0624). More importantly, on examination of the standardized regression weights between the original model and the alternative model created (see Figure 4), the standardized regression weights were fairly close. The only major difference identified between the original and alternative model is the effect of regret on the extent of rumination; however, since the relationship between these two variables was not significant, we proceeded to use the alternative model, as it exhibited better fit. Furthermore, the alternative model did not change the original hypotheses nor did it alter any of the theoretical foundations.

Results

Direct effects

H1 through *H3* specify direct effects. The results of these direct effects are presented in Table VII. *H1* predicted that regret would be negatively related to extent of satisfaction levels. As seen in Table VII, *H1* was supported (beta = -0.577; SE = 0.090; $p < 0.001$). This indicates that the more regret induced from staying or switching to another brand, the lower the extent of satisfaction felt.

	Unstandardized beta	Standardized beta	Critical ratio	S.E.	<i>p</i> -value
Regret and satisfaction level	-0.577	-0.542	-6.436	0.090	<i>p</i> < 0.001
Regret and extent of rumination	0.020	0.015	0.137	0.149	<i>p</i> > 0.05*
Regret and brand switching likelihood	0.317	0.333	3.849	0.082	<i>p</i> < 0.001
Regret and negative emotion	0.707	0.526	6.429	0.110	<i>p</i> < 0.001
Negative emotion and satisfaction level	-0.180	-0.227	-2.638	0.068	<i>p</i> < 0.05
Negative emotion and extent of rumination	0.618	0.633	5.68	0.109	<i>p</i> < 0.001
Satisfaction level and extent of rumination	0.400	0.325	2.89	0.138	<i>p</i> < 0.05

Table VII.
Direct effects

Note: * Non-significant value

H2 proposed that regret would be positively related to the extent of rumination experienced. This hypothesis was partially supported (beta = 0.020; SE = 0.149; *p* > 0.05). This indicates that induced regret does not have a significant effect on the extent of rumination; however, there is still a positive relationship between regret and extent of rumination experienced.

The final direct effect is proposed in *H3*, which suggests that regret should be positively related to brand switching intention. As seen in Table VII, this hypothesis was supported (beta = 0.317; SE = 0.082; *p* < 0.001). Thus, the greater the experiences of regret, the higher the chances are that consumers will switch brands.

Mediation and indirect effects

H4a and *H4b* proposed partially mediating relationships. Specifically, *H4a* proposed that the relationship between regret and extent of satisfaction level would be partially mediated by negative emotion.

H4a is supported since there is a significant direct relationship between negative emotion and regret (*p* < 0.001), and there is a significant direct negative effect between negative emotion and satisfaction levels (*p* < 0.05) (see Table VII). Accordingly, if the direct effects are significant, then the indirect effect is also significant. The indirect path was also calculated using the Sobel test (beta 1 = 0.707; beta 2 = -0.180; IE = -0.127; *p*-value = 0.02). This indicates that negative emotion partially mediates the relationship between regret and the extent of satisfaction levels.

H4b proposed that the relationship between regret and extent of rumination would be partially mediated by negative emotion. *H4b* is partially supported since there is a significant direct effect between negative emotion and regret (*p* < 0.001), and there is a significant direct relationship between negative emotion and the extent of rumination (*p* < 0.001) (see Table VII). However, the relationship between regret and extent of rumination is only partially significant (*p* < 0.10). According to Baron and Kenny (1986), negative emotion does not qualify as a mediator since there is no significant relationship between regret and extent of rumination; however, there is an indirect effect of negative emotion between regret and the extent of rumination. Since there is a non-significant relationship between regret and extent of rumination, this indicates

that negative emotion indirectly influences the relationship between regret and the extent of rumination experienced (Holmbeck, 1997).

With regard to the post-hoc added path between extent of satisfaction level and extent of rumination in the alternative model, this path indicates that negative emotion partially mediates the relationship between satisfaction levels and the extent of rumination. In testing these relationships, there is a significant negative relationship between negative emotion and satisfaction levels ($p < 0.001$) and a significant positive relationship between negative emotion and extent of rumination ($p < 0.001$). Furthermore, the relationship between satisfaction levels and extent of rumination is a significant negative relationship (see Table VII). Since the direct effects are significant, the indirect effect is also significant. The indirect path was also calculated using the Sobel test (beta 1 = -0.180 ; beta 2 = 0.618 ; IE = -0.111 ; p -value = 0.02). This indicates that negative emotion partially mediates the relationship between satisfaction levels and extent of rumination.

Discussion

This study builds on the existing body of literature regarding the impact of regret on cognitive processes by developing and testing a model of the effects of regret on brand switching intention, satisfaction levels, negative emotions, and ruminative thoughts. We have constructed a model in accordance with several hypothesized relationships of interest within current regret research, and the model fit has demonstrated that regret is an important construct of study when explaining consumer decision-making. Given that a marginally smaller convenience student sample was used to examine the relationship between regret and consumer decision-making, the generalizability of our results is limited. Additionally, due to the potential future development of a newly minted construct, i.e. extent of rumination, and its introduction into the consumer research literature, the items used to capture that construct are confined to accepted definitions derived from psychology research (Martin and Tesser, 1996). However, the results suggest that further research addressing additional and supplementary measures regarding rumination with broader samples of consumers is warranted.

The results of this study indicate that regret matters. More specifically, regret has a positive effect on brand switching intention and a negative impact on satisfaction levels. Thus, the role of regret has important implications for marketers who are interested in creating brand loyalty, as well as for those managers looking to reconstruct relationships among consumers that have had negative experiences with a particular brand. These findings indicate that it is important for managers to focus on the antecedents of regret and to mitigate its consequences. Further, due to the potential implications regarding regret and its temporal orientation on consumer behavior, more research is needed to examine potential mediating factors that may help explain the inconclusive results found pertaining to regret. Consumers will compare their experienced brand choices with foregone alternatives; therefore it is important to maximize consumers' positive brand evaluations over time. Even when alternative brand information is not available, consumers may engage in counterfactual thinking and mentally simulate what might have occurred. Consequently, it is important for marketers to engage in post-purchase communication efforts to minimize regret, even when alternative brand information is not present.

Additionally, the extent of negative emotion experienced plays an integral role in explaining the relationships between regret and the outcomes of the extent of satisfaction levels and rumination experienced, as well as the effect of satisfaction levels on the extent of rumination. The extent of negative emotion serves as either a mediator or an indirect effect between these relationships, respectively. What is particularly interesting with our findings is that there is a significant negative relationship between satisfaction levels and the extent of rumination experienced. According to the rumination literature, this form of rumination experienced may be referred to as “basking” (Martin and Tesser, 1996). Taking into account the findings of our study, further research is needed to better understand the different forms of rumination. Negative emotion has been heavily researched within the consumer behavior literature with reference to regret and satisfaction levels; however, minimal research has examined the effects of positive emotions on ruminative thoughts. Additionally, research examining the effects of rumination on satisfaction levels, brand switching intentions, negative emotions, and other variables pertaining to consumer behavior deserves much needed attention. Such research can help to validate existing findings and facilitate a better understanding of consumption patterns. These avenues for research within the consumer behavior literature can prospectively shed light on both consumer welfare issues and the attributes that may create brand loyalty for firms.

Our findings further validate existing research regarding the influence of regret on consumer behavior and decision-making (Inman *et al.*, 1997). Our results did not indicate that regret has a significant impact on the extent of rumination experienced, even though this relationship was positive. However, this finding should not be taken into account without regard to the negative consequences of ruminative thought on individual welfare that is suggested in the rumination literature. Within the consumer research literature, specifically, it should be noted that the unwanted consequences of ruminative thought are a universal phenomenon and can render similar conditions within consumption experiences. Presently, there has been sparse research examining the effects of ruminative thoughts due to regret experienced during the consumer decision-making process, and more importantly, its effect on consumer well-being. Further research is needed to better understand the implications of consumers’ ruminative thought occurrences and their impact on future purchase decisions.

Through a deeper understanding of how specific recourses may be taken to mitigate consumer regret, negative emotions, and ruminative thinking, firms can potentially enhance a brand’s image and instill brand loyalty. Consumers, on the other hand, should pay close attention to the extent of which negative emotions are felt. This is particularly important because the amount of negative emotion felt impacts both the extent of satisfaction levels and the extent of rumination experienced. Considering that the occurrence of rumination fundamentally has negative effects on individuals’ well being, it is in the best interest of consumers to seek some form of emotion regulation. For some consumers, it may be necessary to return the product they bought or to switch brands in the future. Ultimately, both consumers and marketing managers should be prepared to deal with the consequences of consumer regret. Likewise, it will benefit marketing managers to try to minimize consumer post-purchase regret. By furthering their understanding of the consequences experienced due to regret and the extent of negative emotion, both firms and individuals will be able to enhance their overall welfare.

References

- Abendroth, L.J. and Diehl, K. (2006), "Now or never: effects of limited purchase opportunities on patterns of regret over time", *Journal of Consumer Research*, Vol. 33, December, pp. 342-51.
- Anderson, E.W. and Sullivan, M. (1993), "The antecedents and consequences of customer satisfaction for firms", *Marketing Science*, Vol. 12, Spring, pp. 125-43.
- Baron, R.M. and Kenny, D.A. (1986), "The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations", *Journal of Personality and Social Psychology*, Vol. 51 No. 6, pp. 1173-82.
- Bendapudi, N. and Leone, R.P. (2003), "Psychological implications of customer participation in co-production", *Journal of Marketing*, Vol. 67 No. 1, p. 14.
- Bergkvist, L. and Rossiter, J.R. (2007), "The predictive validity of multiple-item vs single-item measures of the same constructs", *Journal of Marketing Research*, Vol. XLIV No. 2, preprint.
- Boles, T.L. and Messick, D.M. (1995), "A reverse outcome bias: the influence of multiple reference points on the evaluation of outcomes and decisions", *Organizational Behavior and Human Decision Processes*, Vol. 61, pp. 262-75.
- Bougie, R., Pieters, R. and Zeelenberg, M. (2003), "Angry customers don't come back, they get back: the experience and behavioral implications of anger and dissatisfaction in services", *Academy of Marketing Science Journal*, Vol. 31 No. 4, p. 377.
- Brunstein, J.C. and Gollwitzer, P.M. (1996), "Effects of failure on subsequent performance: the importance of self-defining goals", *Journal of Personality and Social Psychology*, Vol. 70, pp. 395-407.
- Byrne, B.M. (2001), *Structural Equation Modeling with AMOS*, AMOS, NJ.
- Carver, C.S. and Scheier, M.F. (1981), *Attention and Self-Regulation: A Control Theory Approach of Human Behavior*, Springer Verlag, New York, NY.
- Carver, C.S. and Scheier, M.F. (1982), "Control theory: a useful conceptual framework for personality-social, clinical, and health psychology", *Psychological Bulletin*, Vol. 92, pp. 111-35.
- Chattopadhyay, A. and Basu, K. (1990), "Humor in advertising: the moderating role of prior brand evaluation", *Journal of Marketing Research*, Vol. 27, pp. 466-76.
- Conway, V.J. and Terry, D.J. (1992), "Appraised controllability as a moderator of the effectiveness of different coping strategies: a test of goodness of fit hypothesis", *Australian Journal of Psychology*, Vol. 44, pp. 1-7.
- Crosby, L.A. and Stephens, N. (1987), "Effects of relationship marketing and satisfaction, retention, and prices in the life insurance industry", *Journal of Marketing Research*, Vol. 24, November, pp. 404-11.
- Darke, P.R., Chattopadhyay, A. and Ashworth, L. (2006), "The importance and functional significance of affective cues in consumer choice", *Journal of Consumer Research*, Vol. 33, p. 322.
- Dholakia, U.M. (2001), "A motivational process model of product involvement and consumer risk perception", *European Journal of Marketing*, Vol. 35 Nos 11/12, pp. 1340-60.
- Eroglu, S.A. and Machleit, K.A. (1990), "An empirical study of retail crowding: antecedents and consequences", *Journal of Retailing*, Vol. 66, Summer, pp. 201-21.
- Folkman, S. and Lazarus, R.S. (1980), "An analysis of coping in a middle-aged community sample", *Journal of Health and Social Behavior*, Vol. 21, pp. 219-39.
- Gerbing, D.W. and Anderson, J.C. (1988), "An updated paradigm for scale development incorporating unidimensionality and its assessment", *Journal of Marketing Research*, Vol. 25, pp. 186-92.

- Gilovich, T. and Medvec, V.H. (1995), "The experience of regret: what, when, and why", *Psychological Review*, Vol. 102 No. 2, pp. 379-95.
- Gilovich, T., Medvec, V.H. and Kahneman, D. (1998), "Varieties of regret: a debate and partial resolution", *Psychological Review*, Vol. 105, pp. 602-5.
- Gotlieb, J.B. and Sarel, D. (1991), "Comparative advertising effectiveness: the role of involvement and source credibility", *Journal of Advertising*, Vol. 20 No. 1, pp. 38-45.
- Greenleaf, E.A. (2004), "Reserves, regret, and rejoicing in open English auctions", *Journal of Consumer Research*, Vol. 31, September, pp. 264-73.
- Hair, J., Anderson, R., Tatum, R. and Black, W. (1998), *Multivariate Data Analysis*, Prentice-Hall, Englewood Cliffs, NJ.
- Heitmann, M., Lehmann, D.R. and Herrmann, A. (2007), "Choice goal attainment and decision and consumption satisfaction", *Journal of Marketing Research*, Vol. 44, p. 234.
- Hetts, J., Boninger, D., Armor, D., Gleicher, F. and Nathanson, A. (2000), "Influence of anticipated counterfactual regret on behavior", *Psychology & Marketing*, Vol. 17 No. 4, pp. 345-68.
- Holmbeck, G.N. (1997), "Toward terminological, conceptual, and statistical clarity in the study of mediators and moderators: examples from child-clinical and pediatric psychology literatures", *Journal of Consulting and Clinical Psychology*, Vol. 65 No. 4, pp. 599-610.
- Hu, L. and Bentler, P.M. (1999), "Cut-off criteria for fit indices in covariance structural analysis: conventional criteria versus new alternatives", *Structural Equation Modeling*, Vol. 6 No. 1, pp. 1-55.
- Inman, J.J. and Zeelenberg, M. (2002), "Regret in repeat purchase versus switching decisions: the attenuating role of decision justifiability", *Journal of Consumer Research*, Vol. 29 No. 1, pp. 116-28.
- Inman, J.J., Dyer, S. and Jia, J. (1997), "A generalized utility model of disappointment and regret effects on post-choice valuation", *Marketing Science*, Vol. 16, pp. 97-111.
- Kahneman, D. (1995), "Varieties of counterfactual thinking", in Roese, N.J. and Olson, J.M. (Eds), *What Might Have Been: The Social Psychology of Counterfactual Thinking*, Erlbaum, Hillsdale, NJ, pp. 375-96.
- Kahneman, D. and Tversky, A. (1982), "The psychology of preferences", *Scientific American*, Vol. 246 No. 1, pp. 160-73.
- Keinan, A. and Kivetz, R. (2008), "Remedying hyperopia: the effects of self-control regret on consumer behavior", *Journal of Marketing Research*, Vol. 45, p. 676.
- Kline, R.B. (2005), *Principles and Practice of Structural Equation Modeling*, Guilford Press, New York, NY.
- Kozup, J.C., Creyer, E.H. and Burton, S. (2003), "Making healthful food choices: the influence of health claims and nutrition information on consumers' evaluations of packaged food products and restaurant menu items", *Journal of Marketing*, Vol. 67 No. 2, p. 19.
- Landman, J. (1987), "Regret: a theoretical and conceptual analysis", *Journal for the Theory of Social Behaviour*, Vol. 17, pp. 135-60.
- Landman, J. (1993), *Regret: The Persistence of the Possible*, Oxford University Press, New York, NY.
- Lerner, J. and Keltner, D. (2000), "Beyond valence: toward a model of emotion-specific influences on judgement and choice", *Cognition and Emotion*, Vol. 14 No. 4, pp. 473-93.
- Levin, A.M. (2002), "Contrast and assimilation processes in consumers' evaluation of dual brands", *Journal of Business and Psychology*, Vol. 17 No. 1, pp. 145-54.

-
- Loomes, G. and Sugden, R. (1982), "Regret theory: an alternative theory of rational choice under uncertainty", *Economic Journal*, Vol. 92 No. 368, pp. 805-24.
- Lyubomirsky, S. and Nolen-Hoeksema, S. (1993), "Self-perpetuating properties of dysphoric rumination", *Journal of Personality and Social Psychology*, Vol. 65 No. 2, pp. 339-49.
- Lyubomirsky, S., Tucker, K.L., Caldwell, N.D. and Berg, K. (1999), "Why ruminators are poor problem solvers: clues from the phenomenology of dysphoric rumination", *Journal of Personality and Social Psychology*, Vol. 77 No. 5, pp. 1041-60.
- McCrae, R.R. (1984), "Situational determinants of coping responses: loss threat and challenge", *Journal of Personality and Social Psychology*, Vol. 76, pp. 117-22.
- Martin, L.L. and Tesser, A. (1989), "Toward a motivational and structural theory of ruminative thought", in Uleman, J.S. and Bargh, J.A. (Eds), *Unintended Thought*, Guilford Press, New York, NY, pp. 306-26.
- Martin, L.L. and Tesser, A. (1996), "Clarifying our thoughts", in Dyer, R.S. (Ed.), *Ruminative Thoughts: Advances in Social Cognition*, Lawrence Erlbaum Associates, Mahwah, NJ, pp. 189-209.
- Martin, L.L. and Tesser, A. (2006), "Extending the goal progress theory of rumination: goal evaluation and growth", in Sanna, L.J. and Change, E.C. (Eds), *Judgment over Time: The Interplay of Thoughts, Feelings, and Behaviors*, Oxford University Press, New York, NY, pp. 145-62.
- Medvec, V.H., Madey, S.F. and Gilovich, T. (1995), "When less is more: counterfactual thinking and satisfaction among Olympic medalists", *Journal of Personality and Social Psychology*, Vol. 69, pp. 603-10.
- Menon, K. and Dube, L. (2007), "The effect of emotional provider support on angry versus anxious consumers", *International Journal of Research in Marketing*, Vol. 24, p. 268.
- Nolen-Hoeksema, S. and Morrow, J. (1991), "A prospective study of depression and post-traumatic stress symptoms after a natural disaster: the 1989 Loma Prieta Earthquake", *Journal of Personality and Social Psychology*, Vol. 61, pp. 115-21.
- Oliver, R.L. (1997), *Satisfaction: A Behavioral Perspective on the Consumer*, Irwin McGraw-Hill, Boston, MA.
- Panksepp, J. (1998), *Affective Neuroscience: The Foundations of Human and Animal Emotions*, Oxford University Press, New York, NY.
- Patrick, V.M., Lancellotti, M. and Hagtvedt, H. (2009), "Getting a second chance: the role of imagery in the influence of inaction regret on behavioral intent", *Academy of Marketing Science Journal*, Vol. 37, p. 181.
- Pearlin, L.I. and Schooler, C. (1978), "The structure of coping", *Journal of Health and Social Behavior*, Vol. 9, pp. 3-21.
- Potter, R.F., LaTour, M.S., Braun-LaTour, K.A. and Reichert, T. (2006), "The impact of program context on motivational system activation and subsequent effects on processing: a fear appeal", *Journal of Advertising*, Vol. 35 No. 3, p. 67.
- Pyszczynski, T. and Greenberg, J. (1987), "Self-regulatory perseveration and the depressive self-focusing style: a self-awareness theory of reactive depression", *Psychological Bulletin*, Vol. 102 No. 1, pp. 122-38.
- Reynolds, K.E., Folse, J.A.G. and Jones, M.A. (2006), "Search regret: antecedents and consequences", *Journal of Retailing*, Vol. 82, p. 339.
- Richins, M.L. (1997), "Measuring emotions in the consumption experience", *Journal of Consumer Research*, Vol. 24 No. 2, p. 127.

- Roberts, J.E., Gilboa, E. and Gotlib, I.H. (1998), "Rumination response style and vulnerability to episodes of dysphoria: gender, neuroticism, and episode duration", *Cognitive Therapy and Research*, Vol. 22 No. 4, pp. 401-23.
- Rothermund, K. (2003), "Automatic vigilance for task-related information: perseverance after failure and inhibition after success", *Memory and Cognition*, Vol. 31 No. 3, pp. 343-52.
- Segerstrom, S.C., Stanton, A.L., Alden, L.E. and Shortridge, B.E. (2003), "A multidimensional structure for repetitive thought: what's on your mind, and how, and how much?", *Journal of Personality and Social Psychology*, Vol. 85, p. 909.
- Shankar, A., Cherrier, H. and Canniford, R. (2006), "Consumer empowerment: a Foucauldian interpretation", *European Journal of Marketing*, Vol. 40 Nos 9/10, pp. 1013-30.
- Simonson, I. (1992), "The influence of anticipated regret and responsibility on purchase decisions", *Journal of Consumer Research*, Vol. 19, June, pp. 105-17.
- Simpson, P.M., Siguaw, J.A. and Cadogan, J.W. (2008), "Understanding the consumer propensity to observe", *European Journal of Marketing*, Vol. 42 Nos 1/2, pp. 196-221.
- Spreng, R.A., MacKenzie, S.B. and Olshavsky, R.W. (1996), "A reexamination of the determinants of consumer satisfaction", *Journal of Marketing*, Vol. 60, July, pp. 15-32.
- Syam, N., Krishnamurthy, P. and Hess, J.D. (2008), "That's what I thought I wanted? Miswanting and regret for a standard good in a mass-customized world", *Marketing Science*, Vol. 27, p. 379.
- Taylor, S.E. and Schneider, S.K. (1998), "Coping and the simulation of events", *Social Cognition*, Vol. 7, pp. 174-94.
- Tokman, M., Davis, L.M. and Lemon, K.N. (2007), "The WOW factor: creating value through win-back offers to reacquire lost customers", *Journal of Retailing*, Vol. 83, p. 47.
- Tsiros, M. and Mittal, V. (2000), "Regret: a model of its antecedents and consequences in consumer decision making", *Journal of Consumer Research*, Vol. 26 No. 4, pp. 401-17.
- Vaidyanathan, R. (2000), "The role of brand familiarity in internal reference price formation: an accessibility-diagnostics perspective", *Journal of Business and Psychology*, Vol. 14 No. 4, pp. 605-24.
- van Raaij, W.F. (1991), "The formation and use of expectations in consumer decision making", in Robertson, T. and Kassarian, H. (Eds), *Handbook of Consumer Behavior*, Prentice-Hall, Englewood Cliffs, NJ, pp. 401-18.
- Verbeke, W. and Bagozzi, R.P. (2002), "A situational analysis on how salespeople experience and cope with shame and embarrassment", *Psychology & Marketing*, Vol. 19 No. 9, p. 713.
- Wanous, J.P., Reichers, A.E. and Hudy, M.J. (1997), "Overall job satisfaction: how good are single-item measures?", *Journal of Applied Psychology*, Vol. 82 No. 2, pp. 247-52.
- Watson, L. and Spence, M.T. (2007), "Causes and consequences of emotions on consumer behaviour", *European Journal of Marketing*, Vol. 41 Nos 5/6, pp. 487-511.
- Yi, S. and Baumgartner, H. (2004), "Coping with negative emotions in purchase-related situations", *Journal of Consumer Psychology*, Vol. 14, p. 303.
- Yi, Y. (1990), "A critical review of consumer satisfaction", in Zeithaml, V.A. (Ed.), *Review of Marketing*, AMA, Chicago, IL, pp. 68-123.
- Zeelenberg, M. and Pieters, R. (1999), "Comparing service delivery to what might have been", *Journal of Service Research*, Vol. 2 No. 1, pp. 86-97.
- Zeelenberg, M. and Pieters, R. (2007), "A Theory of Regret Regulation 1.1", *Journal of Consumer Psychology*, Vol. 17 No. 1, pp. 3-18.

Appendix 1

Examples of manipulations

Long-term by regret of action. Assume that you bought a laptop computer three years ago. Back then, you had narrowed your choices down to two models that met your price range and needs: iFORCE and eTRIX. You could have either stayed with the iFORCE brand, a brand you owned in the past, or you could switch to a different brand – eTRIX. After thinking about which laptop to buy for some time, you had decided to switch to the new brand, the eTRIX. The eTRIX laptop performs as you expected and you are satisfied.

However, this morning, you read the most recent article review by *Consumer Reports* indicating that the iFORCE laptop far outperformed the eTRIX laptop. Moreover, the iFORCE laptop received the highest recommendation of all the laptops reviewed. You now regret the decision you made three years ago, and you start to wonder about how you would feel if you had stayed with your current brand . . .

Short-term by regret of inaction. Assume that you just bought a laptop computer within the past week. You had narrowed your choices down to two models that met your price range and needs: iFORCE and eTRIX. You could either stay with the iFORCE brand, a brand you currently own in a desktop, or you could switch to a different brand – eTRIX. After thinking about which laptop to buy for some time, you decided to stay with your current brand, the iFORCE. The iFORCE laptop performs as you expected and you are satisfied.

However, this morning, you read the most recent article review by *Consumer Reports* indicating that the eTRIX laptop far outperformed the iFORCE laptop. Moreover, the eTRIX laptop received the highest recommendation of all the laptops reviewed. You now regret the decision you made, and you start to wonder about how you would feel if you had switched to the alternative brand . . .

Appendix 2

Variables and questionnaire items

Exogenous variable:

- (1) Regret (REG):
 - R1: I regret the choice I made.*
 - R2: I feel sorry for my decision.
 - R3: I should have chosen the alternative choice.*

Endogenous variables:

- (1) Extent of satisfaction level (SL):
 - S1: To what extent would you feel satisfied with your purchase decision?
 - S2: To what level would you feel content with your purchase decision?
 - S3: To what degree would you feel pleased with your purchase decision?
- (2) Extent of rumination (RUM):
 - ERUM1: To what extent would you ruminate about this experience?
 - ERUM2: To what level would you ruminate about this experience?
 - ERUM3: To what degree would you ruminate about this experience?*
- (3) Branding switching intentions (BS):
 - SW1: Based on the scenario, how likely are you to switch to another brand of laptop computer in the future?
 - SW2: Based on the scenario, how probable are you to switch to another brand of laptop computer in the future?

- SW3: Based on the scenario, how plausible would it be for you to switch to another brand of laptop computer in the future?

Mediating variable:

- (1) Extent of negative emotion (NE):
 - EN1: To what extent would you feel angry with your purchase decision?
 - EN2: To what level would you feel irritated with your purchase decision?
 - EN3: To what degree would you feel upset with your purchase decision?

*Indicates deletion from model.

Corresponding author

My Bui can be contacted at: myla.bui@gmail.com