The Impact of a Maximizing Mindset on Regret and the Omission Bias

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Abstract

Previous research indicates a link between a maximizing mindset, regret and omission. The present study aims to extend the literature on maximizing as a mindset and its effects. It tests experimentally whether a maximizing mindset increases the possibility of regret and the omission bias, and whether omission is mediated by regret. Participants in a maximizing mindset condition and a control condition were asked to choose the best deal among three alternatives in five different product categories. After choosing an alternative, the alleged best deal was presented and participants were asked to rate their regret, mood and difficulty of the decision. The experiment yielded no significant results between the two conditions, even when controlling for mood and difficulty. These results are not in line with prior research and show the need for further research to explore the link between a maximizing mindset, negative emotions like regret, and consequences like omission.

Introduction

In daily life, consumers are constantly confronted with situations in which they are tempted to choose the best deal, wanting to give their best, or get the maximum out of various situations. In most situations, people's general attitude is to strive for the best possible outcome, for example, finding the best university, the best job, or even the best partner. Slogans like "Your perfect match is just a click away" (Parship, "Online dating site for serious relationship", 2017) or "Do more" (American Express, Evans & Schmalensee, 2005, p. 196) should motivate and activate maximizing behavior among consumers. Mercedes-Benz summarizes this zeitgeist quite well with their catch phrase "The best or nothing" (Mercedes-Benz, "Mercedes-Benz launches communications offensive: The best or nothing", 2010).

At first sight, going for the best has many advantages. It motivates people and sets a criterion for their decision. They spend more time balancing pros and cons, and in this way make decisions more thoroughly. As an example, take a prospective student looking for the best university: going through different universities, programs, rankings, and talking to professors and other students helps him to make a better decision and gives him the confidence of taking the best decision for his career path. Thus, searching for the best outcome might help people to make better decisions and, therefore, should lead to more satisfying choices.

However, searching for the best option might also backfire. What if a prospective student puts an extensive amount of time and effort into finding the best university for his undergraduate program, only to find out that another university would have been a better choice four weeks after he had already made his decision? Aiming at finding the best possible university before making his decision may potentially lead to the experience of feeling more regret afterwards. In turn, choosing a university based on the fact that one is satisfied with the choice, even if it is not the very best university, may lead to a lower feeling of regret. Thus, aiming for the best choice might set a prospective student up for experiencing intense regret.

The experience of regret through previous decisions might even inhibit future decisions. For example, when the above-mentioned student graduates from his undergraduate program and looks for a graduate program: with the negative feeling of regret from the undergraduate program choice in mind, his decision might be influenced by it, because he wants to avoid negative feelings this time. Dealing with this fear, one possible option would be not taking any action and making a "passive" decision by just staying at his current university, where he completed the undergraduate program.

Thus, inducing a maximizing mindset might cause people to experience stronger regret if a decision turns out to be wrong and this feeling of regret might instigate a bias toward more passive decision-making, a so-called omission bias, in subsequent decisions. Hence, slogans like “The best or nothing”, which are aiming to motivate people for thorough decision-making, might actually backfire if people cope by omission with possible regret caused by a maximizing mindset. In that case, the ways to motivate and enable behavior among people by means of slogans of marketers up to the governments should be reconsidered.

A growing body of research supports the notion that inducing a maximizing mindset strengthens the link between regret and omission (Anderson, 2003; see also Ma & Roese, 2014; Schwartz et al., 2002). In the study at hand, we examine the impact of inducing a maximizing mindset on omission and the mediating role of regret in this effect experimentally. First, we address the maximizing mindset and how such a mindset might increase regret about choices. Then, we discuss how experienced regret might lead to omission. To sum up, we formulate our specific research hypotheses and address our present research in more detail. Finally, we present the method of the experiment, analysis and discussion of the results.

Maximizing and Satisficing

Von Neumann and Morgenstern’s (1944) Rational Choice Theory states that people are rational choosers and have well-ordered preferences with a complete overview over costs and benefits of each option. These preferences are not influenced by any other factors. To make a decision people compare these options to their preferences, values or with regard to resulting utility in order to maximize the outcome of one of these.

However, according to Simon (1955) decision-making is not as rational as Rational Choice Theory predicts. Apart from not always being completely informed, people do not have the cognitive capacity to process all information of their complex environment due to their bounded rationality. Simon (1955) argued that people in situations of choosing could be divided into two decision styles: maximizing and satisficing. Maximizing can be characterized by two components: first, the tendency to compare alternatives and, second, the goal of finding the best option (Schwartz et al., 2002). Opposed to this, satisficing decision-makers evaluate the alternatives until they find their “good enough” option. Schwartz et al. (2002) draw a further distinction between maximizing and satisficing decision styles and argue that some people are more engaged in comprehensive search to maximize their

preferences, values, or utilities than others. An example of the difference between maximizers and satisficers could be the situation of prospective students finding their study path. Maximizers would compare all possible programs, and all universities offering these programs – always in pursuit of finding the best program and university for themselves. In contrast, satisficers would most likely identify a limited number of programs until a program and university is found, which fulfills their needs and is feasible for them. In the following study, maximizing refers to the tendency to compare alternatives and, secondly, the goal of finding the best option and we use the term maximizers as maximizing as individual characteristic.

Maximizing Mindset

While most researchers define maximization as an individual characteristic, it can also be a mindset, which can be activated in different situations (Ma & Roese, 2014). Xu and Wyer (2007) state: "a mindset is characterized by the persistence of cognitive processes and judgmental criteria that are activated in the course of performing a task. Once activated, it generalizes to other situations, affecting responses in these situations as well" (pp. 556–557).

Hence, maximizing cognitive patterns and judgment criteria are activated among decision-makers in certain situations, and, in turn, they affect decisions in subsequent situations. For example, requests of slogans like "choose the best" lead to the activated, underlying goal of finding the best and thus to a maximizing mindset (Ma & Roese, 2014). Levav, Reinholtz, and Lin (2012) investigated the effects of the maximizing mindset and showed that an activated maximizing mindset results in greater search depth, for example, longer decision time and more sampling. In the study at hand, we use maximizing mindset as the activated, underlying goal of finding the best.

Maximizing enhances Regret

Although maximizers and people in a maximizing mindset may generally achieve better objective outcomes than satisficers due to their high standards and exhaustive search and decision procedures, subjectively viewed, they might experience these outcomes as worse. Since maximizers are constantly checking whether they could have chosen better, they might feel regret more likely after taking decisions.

According to Zeelenberg, Nelissen, Seger, Breugelmans, and Pieters (2008) regret is one of the most important emotions in the process and the outcome of decision-making. Regret can be described as a negative emotional state, which is linked to the comparison

between a decision outcome and a superior counterfactual alternative (Zeelenberg & Van Dijk, 2005). Zeelenberg (1999) defines regret as: "a negative, cognitively based emotion that we experience when realizing or imagining that our present situation would have been better, had we decided differently" (p. 94). Regret can be further distinguished between action regret, where a person acted, and inaction regret, where a person did not act (instead of acting) (Van Dijk & Van Harreveld, 2008).

In the study of Schwartz et al. (2002), the process of decision-making between maximizers and satisficers was compared in order to explore possible effects of it. First, participants were identified as either maximizers or satisficers, using Schwartz et al.'s (2002) maximization scale. Then, they were asked to recall a recent, expensive or inexpensive, purchase. Subsequently, participants answered questions regarding product comparisons, time to decide on the product, social comparisons, happiness with the product, and regret toward the recalled purchase. When recalling a specific purchase, people who scored higher on the maximization scale considered more products and took longer to decide. Furthermore, these maximizers indicated that they were less happy, experienced more regret, and engaged in more (downward and upward) comparison before and after making the decision. Here, upward social comparison was predictive for regret (Schwartz et al., 2002). Hence, maximizing enhances regret among individuals through product comparisons and by upward social comparison.

These findings were supported by the results of Iyengar, Wells, and Schwartz's (2006) study, in which students with high maximizing tendencies got jobs with 20% higher starting salaries after their graduation as compared to students with low maximizing tendencies. Here the maximizing tendency can be defined as the tendency to compare and the goal to get the best. However, although maximizers achieved better objective outcomes, they were less satisfied with their job and experienced more negative feelings during the process of searching for a job (Iyengar et al., 2006).

Schwartz et al. (2002) also investigated the impact of regret on the process of decision-making of maximizers. They used a variant of the ultimatum game in which one player, the proposer, is endowed with a certain amount of money and proposes how to divide the money between himself and another player, the responder. The responder can either accept or reject the proposer's offer. If the responder accepts the offer, the money is split accordingly. If the responder rejects, however, both players receive nothing. Under these circumstances, proposers avoid possible regret by making higher offers, so that the responder would not reject it.

In the modified version of Schwartz et al. (2002), participants were not only told whether their offer was accepted or rejected, in addition they were informed about the smallest offer the responder would have accepted. In this modified ultimatum game, participants can experience regret for both too high and too low offers. Schwartz et al. (2002) give evidence for the impact of regret on their decision-making process and found that satisficers and maximizers tend to adjust their offers differently based on whether the minimum acceptable offer was shown. Satisficers offered more when the recipient's minimum acceptable offer was going to be revealed, while maximizers did the opposite. Moreover, the study offers further support for higher scores on the maximizing scale predicting lower scores of satisfaction.

However, not only research on maximization as an individual trait shows an enhancing effect of maximizing on regret. Also, a situationally activated maximizing mindset can lead to regret. Ma and Roese (2014) demonstrate the processes of comparisons and the goals in a maximizing mindset. Their results indicate that an activated maximizing mindset has similar effects like being a maximizer.

In one of their experiments, they used a game called "Best Deal" to manipulate momentary regret among participants. Participants were asked five consecutive times to choose the deal with the best value among three different deals of the product, for example, buying three cartons of milk. One deal was objectively better than the others, but this was not obvious for the participants at first sight, because of the high amount of information per deal and restricted decision time. After each participants' decision about one deal, the best deal was presented and they got the information that they could receive a bonus if they find all deals with the objectively best value. Like Iyengar et al. (2006), Ma and Roese (2014) found that maximizers achieved better objective outcomes in the end. Hence, the participants in the maximizing mindset condition got more "best deals" right than others. This indicates that a maximizing mindset effectively motivates people to find the best. However, participants in the maximizing mindset condition also reported more regret than the control condition and the no priming baseline, even after controlling for the number of best deals obtained.

The definition of regret, as the comparison between an outcome and a superior counterfactual alternative, leads to a possible explanation of the enhancing effect of a maximizing tendency on regret (Iyengar et. al, 2006; see also Ma & Roese, 2014; Schwartz et al., 2002). Maximizers' tendency to compare all alternatives and the goal of finding the best option leads to a higher investment of time and effort during the decision-making process and, thus, to a higher expectation regarding the outcome (Huang & Zeelenberg, 2012). These

higher expectations evoke more regret among maximizers, because the gap between the actual outcome and a superior counterfactual alternative is higher. Furthermore, possible ambiguity, the uncertainty of not knowing the best possible outcome among all alternatives, leads to higher regret among maximizers (Huang & Zeelenberg, 2012).

Hence, individuals with an activated maximizing mindset want better outcomes because of the underlying goal of finding the best option. Thus, they invest more due to their tendency to compare alternatives and in the end their outcome has to be worthwhile. Otherwise it triggers an important affective response: regret. Building on prior research, we expect that a maximizing mindset leads to greater regret than a control mindset if the initial option chosen turns out not to be the best.

Regret leads to Omission

Regret is described as the most intense negative emotion (Van Dijk & Van Harreveld, 2008) and people try to avoid negative feelings. Therefore, they are regret averse (Zeelenberg, Beattie, Van der Pligt, & De Vries, 1996). According to Schwartz et al. (2002), regret aversion is an important factor in decision-making. People try to avoid choices and minimize the number of choice situations if there is the possibility of feeling regret after the decision. These findings of regret aversion were summarized in the regret theories of Bell (1982) and Loomes and Sugden (1982). According to these theories, people compare the outcome of their preferred option with the outcome of the other less preferred options. The result of this comparison can lead to the feeling of regret and, therefore, plays a role in the decision-making process. Individuals anticipate the possible feeling of regret in their decision and think about the probability and intensity of feeling regret beforehand.

According to Gilovich and Medvec (1995), people regret taking action, also referred to as commission, more than taking no action, meaning to engage in omission. They state that this action effect is the "clearest and most frequently replicated finding" (p. 380) in the field of counterfactual thinking. For example, Anderson (2003) also finds that individuals associate action with more regret than inaction in the context of decision-making. Furthermore, people feel more responsible for their taking action than for omitting action (Kahneman & Tversky, 1982).

Kahnemann and Miller (1986) offer an explanation for this effect with their Norm Theory. They argue that peoples' emotional responses to a decision, for example the feeling of regret, are perceived as more intense through psychologically abnormal causes. Actions or deviations from the status quo are perceived as such abnormal causes by individuals. So the

Norm theory is an explanation of people's omission because they anticipate more potential regret because of commission (Kahnemann & Miller, 1986).

According to Baron and Ritov (1994), another explanation stems from the assumption of loss aversion in Prospect Theory. Loss aversion is the tendency of individuals to weight potential losses greater than potential gains of the same amount. Applied to regret in the context of decision-making, the probability of experiencing more joy of an action would be less than for the potential of taking no action, which leads to an increased preference for omission.

Luce (1998) found that consumers cope with negative emotions, like regret, through opting for an avoidant alternative because it minimizes the confrontation with potential negative decision consequences and difficult trade-offs. It leads to a less negative emotional evaluation of the decision afterwards and in that way reduces the feeling of regret. Additionally, Riis and Schwarz' (as cited in Anderson, 2003) study shows that omission is seen as less intimidating as compared to commission and in that way contributes to reduce prior experienced negative emotions, like regret. In their experiment of consecutive decisions, the selection of the status quo option by individuals increased when the previous choice produced negative emotions. Hence, the experience of previous negative emotion, like regret, can cause omission to cope with anticipated regret.

This higher preference for omission refers to the omission bias, which can be defined as an increased preference of decision-makers for non-action required options, like going with the status quo option (Spranca, Minsk, & Baron, 1991). The omission bias can be seen as the basis of the status quo bias, which is the preference for the current state of affairs in decision (Kahneman, Knetsch, & Thaler, 1991), but should also be differentiated from the status quo bias. The status quo option has often been confused with the omission option. The omission option simply refers to choosing an alternative that requires no action at all, regardless of whether that alternative results in keeping the status quo or changing it (Ritov & Baron, 1992; see also Anderson, 2003). In the following study, we use the term omission bias for individuals' preference of non-action required options including keeping the status quo.

According to prior research, there is evidence of linking omission to emotional outcome. We expect that a maximizing mindset increases the possibility of feeling or expecting regret and people show an omission bias in order to avoid possible regret.

The Present Study

In the present study, we extend the limited existing literature on maximizing as a mindset and explore its effects further as prior research indicates a link between a maximizing mindset, regret and omission (e.g., Anderson, 2003; Ma & Roese, 2014). We test our expectations in an experiment, in which a maximizing mindset is activated among participants (maximizing condition) or not (control condition). Subsequently, all participants are presented with five situations, in which they are asked to make a choice between three options. In each choice situation, one option is preselected. After each choice, participants receive feedback that their chosen option was not the best choice. Then, they are asked how satisfied and how regretful they are about their choice and how difficult they rate the decision. As shown in Figure 1, we hypothesize that:

H1: Participants in the maximizing condition experience more regret after not choosing the best option than participants in the control condition.

H2: Participants in the maximizing condition choose more often the preselected option than participants in the control condition.

H3: Experienced regret after not choosing the best option mediates the effect of maximizing condition on preference for the preselected options.

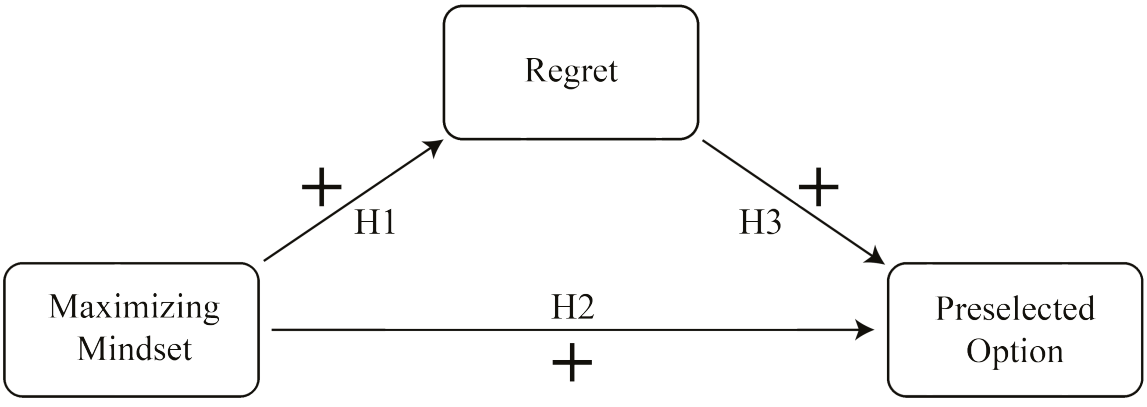

Figure 1. Overview hypotheses.

Method

Participants, Design and Experimental Procedures

A total of 152 adult participants (66 female, 85 male, 1 not specified) with English as their native language were recruited through Prolific, an online recruiting platform for research participants, and paid £0.59 each for the on average 6 minutes and 42 seconds long study. The participants were randomly assigned to one of the two experimental conditions (maximizing vs. control) of a two-group experimental design. Seventy-two (47.4%) participants were in the maximizing and 80 (52.6%) in the control condition. The average age of participants was 37.63 years (SD = 11.71) and there was no difference in age between the two conditions, $t(150) = 0.24$, $p = .81$, nor was there a difference between female and male participants, $\chi^2(1) = 1.70$, $p = .19$. The youngest participant was 18 years old, and the oldest was 70 years old.

Participants were asked to fill out an online survey, which was programmed with Qualtrics. At the beginning, they were given an informed consent with an explanation of the procedure of the study. After that, participants took part in a procedural priming task, adapted from Ma and Roese (2014), to induce either the maximizing mindset or control mindset. Then, an adapted version of the game "Best Deal" from Ma and Roese (2014) was used to test the impact of the maximizing mindset. It requests participants' decisions on the best deal in five different product categories which was followed by a measurement of regret, mood and difficulty after each decision. Upon completion of the survey, participants were asked to state the purpose of the study and their demographic details. They were then thanked for their participation, debriefed, and paid.

Inducing a Maximizing Mindset

Procedural priming was used to induce a maximizing mindset in the maximizing condition. Here, a performance task within different domains, adapted from Ma and Roese (2014), set the goal of achieving the best and activated comparative thinking among participants. Participants were asked to make the best choice across five non-consumption domains. For example, "Please choose the country you think is the best place to visit: A. Belgium; B. Denmark; C. The Netherlands; D. Norway; E. Sweden".[1] Asking for the best lead to the activated, underlying goal of finding the best and thus to a maximizing mindset among participants.

[1] See Appendix A for the full list of questions.

Participants in the control condition answered similar questions across the same five domains, but not involving any maximization requests or tendencies. For example, "Please choose the countries you think would be acceptable to visit: A. Belgium; B. Denmark; C. The Netherlands; D. Norway; E. Sweden." (adapted from Ma & Roese, 2014).[1]

Assessed Variables

Best deal and omission. Following the priming task, the game "Best Deal", adapted from Ma and Roese (2014), was used to investigate the impact of the maximizing mindset on regret and omission in the context of decision-making. After an introduction explaining and emphasizing the importance of their choice, participants were asked five consecutive times to choose the best deal with the best value among three alternatives in five different product categories. For example, participants were confronted with the following situation: "Assume that you need to buy three cartons of milk. Which deal will you choose? A. £3.74 for 3 cartons; B. £1.87 each, buy 2 get 1 free; or C. £1.78 each, buy 3 get 30% off". [2] Different from the version of Ma and Roese (2014), in each set of deals no alternative was objectively higher in value than the others to evoke regret among the participants.

These five different sets of deals were presented to participants one after another. Each decision was followed by a separate measurement of regret, mood and difficulty. The decision time for each set of deals was limited to 30 seconds to prevent participants using a calculator. One (randomly chosen) alternative in the set of deals was highlighted and preselected as the status quo. If participants stayed with the preselected option, this was taken for omission. As we use the term omission bias for individuals' preference of non-action required options, the number of clicks in the choice situation of each deal is used as an indicator for participants staying with the preselected option. Hence, no clicks mean that the preselected option was chosen by the participant.

Mood, regret, and difficulty. After each decision, on one of the best deals in one of the five set of deals, the alleged best deal, was presented and we measured regret, mood and difficulty. In order to evoke regret among the participants, the alleged best deal that we presented to the participant after each of their five best deal choice situations was always one of the non-selected options. Following, participants were asked to answer the following three questions on an 11-point scale, ranging from 0 (*not at all*) to 10 (*extremely*), to measure the mediating variable regret and the control variables mood and difficulty, "How regretful are

[2] See Appendix B for the full list of questions.

you about your choices?"; "How happy are you now?"; "Do you think this game is difficult?". We measured mood to show that regret is not explained by the general mood of participants and to show that maximizing mindset did not create a halo effect of negativity. Furthermore, measuring the perception of difficulty should help to reject the explanation of regret through influenced task perception.

Demographic data. At the end of the survey, participants were asked to indicate their gender and age.

Results

For the analyses of the experiment we used a confidence interval (CI) of 95%, tested two-sided and checked for the violations of the basic assumptions of each test. In order to test if participants in the maximizing condition experience more regret after failing to choose the best option than participants in the control condition, we conducted an Independent Samples T Test, with the average value of regret on all five different deals as the dependent variable, and condition as the independent variable.

On average, participants in the maximizing mindset condition did not report more regret (M = 5.88, SD = 2.66) than participants in the control condition (M = 5.46, SD = 2.97), $t(150) = -0.92$, $p = .36$.

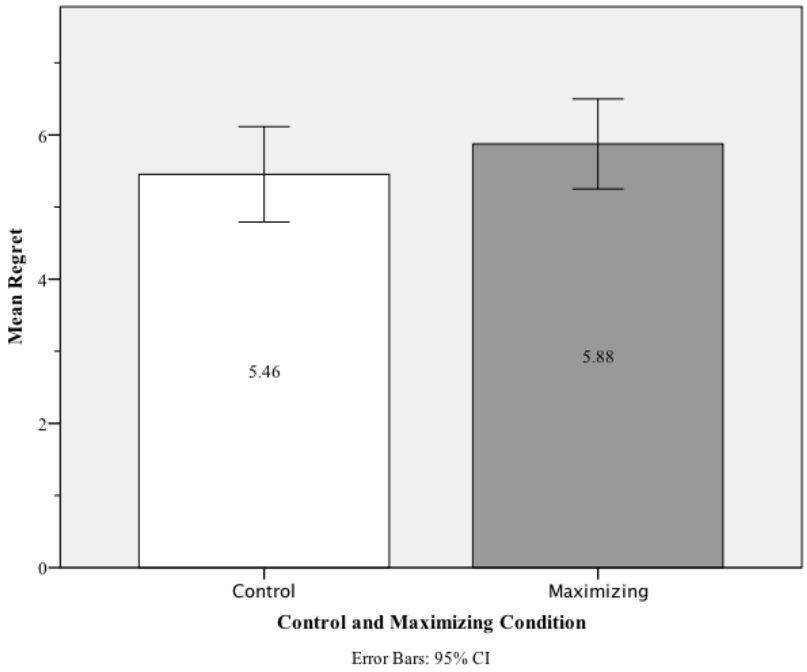

Figure 2. Mean of regret for control and maximizing condition.

Also, testing all five regret measured points separately with five Independent Samples T Tests, including Bonferroni multiple-significance-test correction, as presented in Table 1, yielded no significant results. We also analyzed the data using a mixed-design ANOVA with regret as a within-subjects factor, the five measured points as levels and condition (control, maximizing) as the between-subjects factor. Mauchly's test indicated that the assumption of sphericity had been violated, $\chi^2(9) = 28.15$, $p < .001$, therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity, $\varepsilon = 0.92$. There was no significant main effect of regret, $F(3.7, 554) = 1.67$, $p = .16$, $\eta_p^2 = .011$, and condition, $F(1, 150) = 0.84$, $p = .36$, $\eta_p^2 = .006$, and no significant interaction between regret and condition, $F(3.7, 554) = 1.10$, $p = .35$, $\eta_p^2 = .007$.

Table 1
Results of Independent Samples T Tests.

Variables	Condition	*M*	*SD*	*t*	Sig.
Regret Choice at Milk	Control	5.43	3.24	-1.68	.09
	Maximizing	6.25	2.75		
Regret Choice at Water	Control	5.25	3.24	-0.84	.40
	Maximizing	5.68	3.09		
Regret Choice at Perfume	Control	5.41	3.26	-0.41	.68
	Maximizing	5.63	3.09		
Regret Choice at Socks	Control	5.66	3.39	-0.30	.76
	Maximizing	5.82	2.99		
Regret choice at Coffee	Control	5.53	3.42	-0.92	.36
	Maximizing	6.00	2.87		

Note. df = 150. Control condition $n = 80$ and maximizing condition $n = 72$. Due to no significance of the Levene's test equal variances are assumed. Due to the Bonferroni multiple-significance-test correction the critical p level for significance was set at $p < .01$.

Univariate ANCOVA was used in order to account for effects of mood and difficulty. The independent variable was condition (maximizing or control condition), and the dependent variable was the level of regret after failing to choose the best option. Covariates were mood and difficulty. Important violations of the basic assumptions of conducting ANCOVA, such as normality, linearity, homogeneity of variances, homogeneity of regression slopes, and reliability of measurement of covariates, were not recognized. After statistical controlling for the effects of mood and difficulty, there was no difference between the group with a

maximizing mindset and the group with the control mindset, $F(1) = 0.70$, $p = .41$, $\eta^2 = 0.005$. There was association between mood and regret, $F(1) = 40.50$, $p < .001$, $\eta^2 = 0.22$, and between difficulty and regret, $F(1) = 36.03$, $p < .001$, $\eta^2 = 0.20$, with large effect size (Cohen, 1988). According to these results, H1, suggesting that participants in the maximizing condition experience more regret after not choosing the best option among five different deals than participants in the control condition, is rejected.

We checked if the participants in the maximizing condition chose the preselected option more often than those in the control condition by using Independent Samples T Test. As the indicator of choosing the preselected option we used the number of clicks for each deal – so, no clicks mean that the preselected option was chosen. We calculated how many times each of the participants chose the preselected option out of five deals. Hence, the possible values were between 0 and 5, where 5 means that participant chose the preselected option 5 times. Condition was used as the interdependent variable, and number of choosing preselected option was used as the dependent variable.

Both groups chose the preselected option very rarely (maximizing condition: $M = 0.74$, $SD = 0.87$; control condition: $M = 0.94$, $SD = 0.82$). The results showed that there is no significant difference between the maximizing and control condition, $t(150) = 1.47$, $p = .14$.

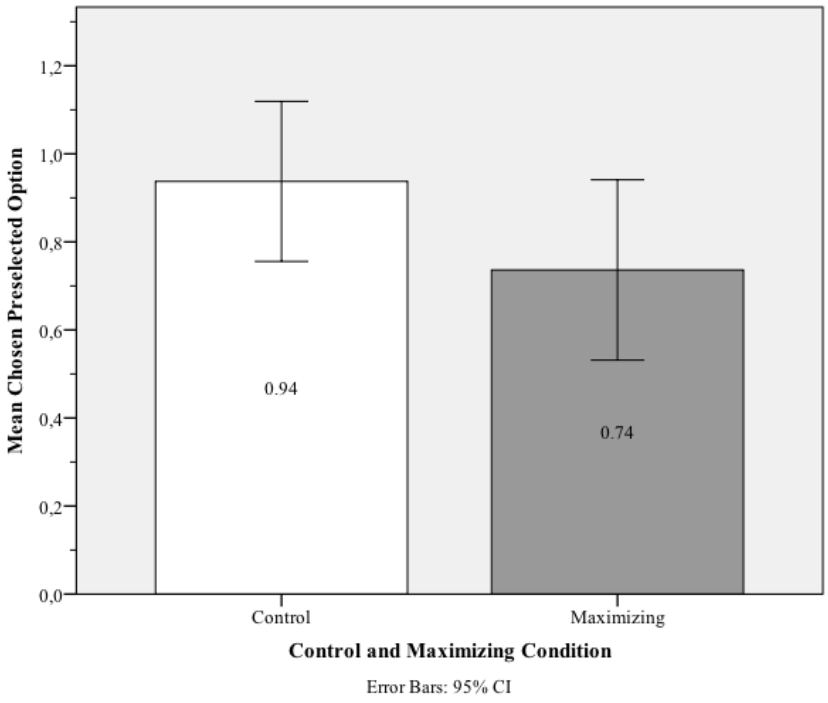

Figure 3. Mean of chosen preselected option for control and maximizing condition.

We used the univariate ANCOVA in order to add mood and difficulty as control variables. Important violations of the basic assumptions of conducting ANCOVA, such as normality, linearity, homogeneity of variances, homogeneity of regression slopes, and reliability of measurement of covariates, were not recognized. After controlling for the effects of mood and difficulty, there was still no difference between the two condition groups, $F(1) = 1.50$, $p = .22$, $\eta^2 = 0.01$. There was no association between mood and the frequency of choosing the preselected option, $F(1) = 1.53$, $p = .22$, $\eta^2 = 0.01$, and also no association between difficulty and the preselected option, $F(1) = 0.06$, $p = .81$, $\eta^2 = 0.00$. According to these results, H2, suggesting that participants in the maximizing condition choose the preselected option more often than participants in the control condition, is rejected.

Table 2 provides an overview of the Point-Biserial Correlation between the maximizing and control condition, regret and the chosen preselected option. As there was neither a significant correlation between the independent (condition) and dependent variable (preference for the preselected option), $r = -.12$, $p = .14$, nor between the independent variable (condition) and the dependent variable (regret), $r = .07$, $p = .36$, we can conclude that regret cannot be a mediator variable in this model. Furthermore, there was no significant correlation between regret and preference for the preselected option according to the Spearman correlation with $r = -.07$, $p = .37$.

Table 2
Point-Biserial Correlation Matrix.

		Maximizing and Control Condition	Regret	Chosen Preselected Option
Maximizing and Control Condition	*r*	1.0	.07	-.12
	Sig.		.36	.14

According to these results, H3, hypothesizing that experienced regret after not choosing the best option among five different deals mediates the effect of maximizing condition on preference for the preselected options, is rejected.

Discussion

The main goal of this experiment was to investigate the link between a maximizing mindset, regret and omission. We expected that a maximizing mindset leads to greater regret than a neutral mindset if the chosen option turns out not to be the best. Moreover, we supposed that a maximizing mindset increases the frequency of choosing the preselected

option. This effect was hypothesized to be mediated by experienced regret after not choosing the best option. The results of our experiment, however, do not yield significant effects. Thus, our results do not support our hypotheses.

Previous studies conflict with the results of the present study. As Ma and Roese (2014) demonstrate, a situational activated maximizing mindset can lead to higher regret among participants. This prediction of higher regret through an activated maximizing mindset among participants is not reflected in our results and there was no significant mean difference between the two conditions, even when controlled for mood and difficulty.

According to existing literature, people regret taking action more than taking no action, and individuals associate action with more regret than inaction in the context of decision-making (Anderson, 2003; Gilovich & Medvec, 1995). The reason for this is that people cope with negative emotions, like regret, through choosing an avoidant option to minimize the confrontation with potential negative decision consequences and difficult trade-offs (Luce, 1998). However, the results of our study do not support these findings. Both conditions chose the preselected option quite rarely. Opposed to reviewed literature there was no significant mean difference of going with the preselected option between the control condition and the maximizing condition. Moreover, as there was no significant correlation between regret and preference for the preselected option, nor between the conditions and regret, as shown in the previous tests, we can conclude that regret was not a mediator in our model.

Potential reasons for these opposed results can be found in the study of Zeelenberg, Van den Bos, Van Dijk, and Pieters (2002), which showed that negative decision outcomes can induce people to act, as opposed to refusing to act. Hence, if the outcome is negative and a person did not take action to prevent further losses, the feeling of regret even increases, as people start asking themselves why they did not act. However, if the person took action to prevent further losses and was not successful, the feeling of regret decreases, as people are able to argue that they have at least tried.

Following the findings of Zeelenberg et al. (2002) and our results, the causal relationship of interest might be situationally influenced and previous decision outcomes as well as the general outcome of a decision might play a role. If, for example, the outcome of a given situation is not that relevant for the participant's decision, the possibility of experiencing regret might be weaker. In turn, this might encourage participants to give taking action a try or gamble, as giving a wrong answer is not that relevant and omitting behavior not applicable as strategy in these situations.

This can also be a limitation of the internal validity of the study. Internal validity refers to an incorrect inference about the causal relationship between two variables (Shadish, Cook, & Campbell, 2002). As stated before it might be situationally influenced and different in real life situations or when the outcome of each choice of the game would be more relevant to the participant, due to a payment dependent on the number of correct answers like in the experiment of Ma and Roese (2014). In that case, participants might think about their decisions more thoroughly than in an anonymous online study with a fixed payment. In general, exposing participants to the survey via an online recruiting platform, limits the control over confounds and threatens to decrease internal validity. Therefore, possible replications of this study should consider using a laboratory experiment with payoffs depending upon participants actual choices.

Furthermore, there attrition is an important factor regarding our internal validity. It refers to the fact that participants did not complete the experiment and quit beforehand (Shadish, Cook, & Campbell, 2002). In our study, some participants, in both the maximizing and control condition, did not complete the five different decisions on deals. As we excluded incomplete data of participations, we ended with two unequal conditions of 72 (47.4%) participants in the maximizing and 80 (52.6%) participants in the control condition. Here quitting during the experiment could be seen as regret aversion, where people try to avoid choices and minimize the number of choice situations if there was the possibility of feeling regret after the decision (Schwartz et al., 2002). Such differences could produce post-test outcome differences as participants' inactivity of canceling the experiment is no longer taken into account for the analysis although they illustrate a pattern of omission.

As construct validity of the study refers to the degree to which the experiment measures what it purports to be measuring (Shadish, Cook, & Campbell, 2002), a limitation of our construct validity could be that we strictly stick to the definition of omission as participants taking no action at all. Hence, we based our analysis on the number of clicks of each participant in the choice situation. However, we did not record participants clicking through the options while trying to make their decision, but switching back to the preselected option, which would be also a pattern of omission. Moreover, including happiness as a control variable might have lowered the significance of the statistical test, because the operationalization might measure the same construct as the operationalization of regret. As our results show, there is an association between mood and regret in our experiment.

In our study, the reactivity to the experimental situation, which refers to the fact that people actively and constantly interpret the situation of the experiment, should also be taken

into account (Shadish, Cook, & Campbell, 2002). Although we ask subjects to give an appraisal of the study's aim in the end, participants already try to guess its purpose while completing the study, especially when regret is manipulated through constantly presenting a not chosen answer as the supposedly correct answer. This situation might also provide cues to participants and, thus, may impact their behavior and the resulting data.

However, the contrasting results of our study, the limited amount of literature on maximizing mindset and the limitations of our study indicate the need for further research. Future research could further develop and explore ways of activating a maximizing mindset and its impacts as for example the means of patterns were in the expected direction. Here a larger sample size might yield significant differences.

Furthermore, as described before, our experiment may benefit from alterations in future studies, for example, a different manipulation of regret, and a different measure of omission. Additionally, construct definitions may be revised. For example, one could make use of the status quo bias instead of the omission bias in accordance with a revised measurement of omission.

In general, the results of our study can fuel discussion through presenting opposing results in examining the link between a maximizing mindset, regret, and the omission bias. Even though the results of the experiment are insignificant, it adds value to the field and extends the literature on research regarding maximizing as a mindset and its effects.

References

Anderson, C. J. (2003). The psychology of doing nothing: Forms of decision avoidance result from reason and emotion. *Psychological Bulletin, 129*(1), 139–166. doi:10.1037//0033-2909.129.1.139

Baron, J., & Ritov, I. (1994). Reference points and omission bias. *Organizational Behavior and Human Decision Processes*, *59*(3), 475–498. doi:10.1006/obhd.1994.1070

Bell, D. E. (1982). Regret in decision-making under uncertainty. *Operations Research, 30*(5), 961–981. doi:10.1287/opre.30.5.961

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale: Erlbaum.

Evans, D. S., & Schmalensee, R. (2005). *Paying with plastic: the digital revolution in buying and borrowing*. Cambridge, MA: MIT Press.

Gilovich, T., & V.H. Medvec (1995). The experience of regret: What, when, and why. *Psychological Review, 102*(2), 379–395. doi:10.1037/0033-295X.102.2.379

Huang, W., & Zeelenberg, M. (2012). Investor regret: The role of expectation in comparing what is to what might have been. *Judgment and Decision-making, 7*(4), 441–51.

Iyengar, S. S., Wells, R. E., & Schwartz, B. (2006). Doing better but feeling worse: Looking for the "best" job undermines satisfaction. *Psychological Science, 17*(2), 143–150. doi:10.1111/j.1467-9280.2006.01677.x

Kahneman, D., Knetsch, J. L., & Thaler, R. H. (1991). Anomalies: The endowment effect, loss aversion, and status quo bias. *Journal of Economic Perspectives. 5*(1), 193–206. doi:10.1257/jep.5.1.193

Kahneman, D., & Miller, D. T. (1986). Norm theory: Comparing reality to its alternatives. *Psychological Review, 93*(2), 136–153. doi:10.1037//0033-295x.93.2.136

Kahneman, D., & Tversky, A. (1982). The psychology of preferences. *Scientific American. 246*, 160–173. doi:10.1038/scientificamerican0182-160

Levav, J., Reinholtz, N., & Lin, C. (2012). The effect of ordering decisions by choice-set size on consumer search. *Journal of Consumer Research*, *39*(3), 585–599. doi:10.1086/664498

Loomes, G., & R. Sugden (1982). Regret theory: An alternative theory of rational choice under uncertainty. *Economic Journal, 92*(368), 805–824. doi:10.2307/2232669

Luce, M. (1998). Choosing to avoid: Coping with negatively emotion-laden consumer decisions. *Journal of Consumer Research, 24*(4), 409–433. doi:10.1086/209518

Ma, J., & Roese, N. J. (2014). The maximizing mind-set. *Journal of Consumer Research, 41(1)*, 71–92. doi:10.1086/674977

Mercedes-Benz launches communications offensive: The best or nothing. (2010). Retrieved August 15, 2017, from http://media.daimler.com/marsMediaSite/en/instance/ko/Mercedes-Benz-launches-communications-offensive-The-best-or-nothing.xhtml?oid=9907951

Online dating site for serious relationship. (2017). Retrieved August 15, 2017, from https://uk.parship.com/

Ritov, I., & Baron, J. (1992). Status-quo and omission biases. *Journal of Risk and Uncertainty*, *5*(1). doi:10.1007/bf00208786

Schwartz, B., Ward, A., Monterosso, J., Lyubomirsky, S., White, K., & Lehman, D. R. (2002). Maximizing versus satisficing: Happiness is a matter of choice. *Journal of Personality and Social Psychology, 83*(5), 1178–1197. doi:10.1037//0022-3514.83.5.1178

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). Experimental and quasi-experimental designs for generalized causal inference. Boston, MA: Houghton Mifflin Company.

Simon, H. A. (1955). A behavioral model of rational choice. *The Quarterly Journal of Economics, 69*(1), 99. doi:10.2307/1884852

Spranca, M., Minsk, E., & Baron, J. (1991). Omission and commission in judgment and choice. *Journal of Experimental Social Psychology, 27*(1), 76–105. doi:10.1016/0022-1031(91)90011-t

Van Dijk, W. W., & Van Harreveld, F. (2008). Disappointment and regret. In Ashkansy N. M., Cooper C. L. (Ed), *Research Companion to Emotion in Organizations* (pp. 90–102). Cheltenham, England: Edward Elgar. doi:10.4337/9781848443778

Von Neumann, J., & Morgenstern, O. (1944). *Theory of Games and Economic Behavior*. Princeton, NJ: Princeton University Press.

Xu, A. J., & Wyer, R. S. (2007). The effect of mind-sets on consumer decision strategies. *Journal of Consumer Research*, *34*(4), 556–566. doi:10.1086/519293

Zeelenberg, M. (1999). Anticipated regret, expected feedback and behavioral decision-making. *Journal of Behavioral Decision-making*, *12*(2), 93–106. doi:10.1002/(SICI)1099-0771(199906)12:2<93::AID-BDM311>3.0.CO;2-S

Zeelenberg, M., Beattie, J., Van der Pligt, & De Vries, N.K. (1996). Consequences of regret aversion: Effects of expected feedback on risky decision-making. *Organizational Behavior and Human Decision Processes, 65*(2), 148–158. doi:10.1006/obhd.1996.0013

Zeelenberg, M., Nelissen R., Breugelmans, S. M., & Pieters, R. (2008). On emotion specificity in decision-making: Why feeling is for doing. *Judgment and Decision Making, 3*(1), 18–27.

Zeelenberg, M., Van den Bos, K., Van Dijk, E., & Pieters, R. (2002). The inaction effect in the psychology of regret. *Journal of Personality and Social Psychology, 82*(3), 314–327. doi:10.1037/0022-3514.82.3.314

Zeelenberg, M., & Van Dijk, E. (2005). On the comparative nature of regret. In Mandel D. R., Hilton D. J. & Catellani P. (Ed.), *The Psychology of Counterfactual Thinking* (pp. 147–62). New York, NY: Routledge.

Appendix A
Maximizing versus Control Condition Priming Survey

Maximizing Mindset

Part 1. Preferences

In this first part of the study, we ask for your decision in several domains. We offer you different options for each domain. Please select the option that you consider the best.

Please choose the singer you think has the best vocal ability:	– Beyoncé – Rihanna – Akon – Shakira – Eminem
Please choose the country you think is the best place to visit:	– Belgium – Denmark – The Netherlands – Norway – Sweden
Please choose the university you think offers the best education:	– Harvard – Yale – Princeton – Oxford – Cambridge
Please choose the job you think offers the highest salary:	– Surgeon – CEO – Engineering Manager – Airline Pilot – Dentist
Please choose the type of pet you think is the smartest:	– Rabbit – Hamster – Turtle – Fish – Cat

Control Mindset

Part 1. Preferences

In this first part of the study, we ask you about your preferences in several domains. We offer you different options for each domain. Please select your preferences.
Multiple selections are possible.

Please choose the singers you think are good enough to listen to:	– Beyoncé – Rihanna – Akon – Shakira – Eminem

Please choose the countries you think would be acceptable to visit:	– Belgium – Denmark – The Netherlands – Norway – Sweden
Please choose the universities you think are affordable to study at:	– Harvard – Yale – Princeton – Oxford – Cambridge
Please choose the jobs that you think pay well enough to live on:	– Surgeon – CEO – Engineering Manager – Airline Pilot – Dentist
Please choose the pets that you would be willing to live with:	– Rabbit – Hamster – Turtle – Fish – Cat

Appendix B
Questions Game "Best Deal"

Game Best Deal

Part 2. Best Deal

In the following part of the study called "Best Deal" we present you with five different hypothetical scenarios. In each scenario, we offer you three different deals.

Your task is to select each time that option that you think is economically the best deal. Your goal in this task is to select as many best deals as possible. Please choose the best deal out of the three displayed options.

You have only 30 seconds to make each of your choices, so please work fast and trust your gut feeling.

After each decision the economically best deal is presented.

Again, try to choose as many best deals as possible. The more of the best deals you select, the better you perform on this task.

Assume that you need to buy three cartons of milk. Which deal will you choose?	– £3.74 for 3 cartons – £1.87 each, buy 2 get 1 free – £1.78 each, buy 3 get 30% off
Assume that you need to buy 3 bottles of water. Which deal will you choose?	– £3.74 for 3 cartons – £1.87 each, buy 2 get 1 free – £1.78 each, buy 3 get 30% off
Assume that you need to buy your favourite perfume online. Which deal will you choose?	– £32 plus 2.75 % payment charge and £6.12 delivery charge – £45.89 and a discount voucher of 15% and no extra costs – £44 and a direct "new customer" discount of £5 on your purchase
Assume that you need to buy 6 new pairs of socks. Which deal will you choose?	– £24.90 for 6 pairs, but a discount of 20% – £4.98 each pair, but buy 4 pairs and get 2 free – £3.32 each pair for a set of 6
Assume that you need to buy 500g of coffee (= ½ kg of coffee). Which deal will you choose?	– £5.97 for 1/3 kg, but 50% extra content in the package – £5.97 for 1/2 kg – £1.99 each 100g package, but buy 3 get 2 free