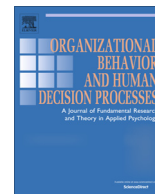




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## Choosing between options associated with past and future regret

Yaniv Shani<sup>a,\*</sup>, Shai Danziger<sup>a</sup>, Marcel Zeelenberg<sup>b</sup><sup>a</sup> *Recanati Business School, Tel-Aviv University, Israel*<sup>b</sup> *Department of Economic and Social Psychology, Tilburg University, The Netherlands*

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## ABSTRACT

People sometimes choose between options associated with already-missed and to-be-missed counterfactuals, or put differently, between past and future regret. We find that these objectively irrelevant associations systematically sway peoples' choices. Results show participants prefer options associated with past promotions (Studies 1–3), and they experience more regret and feel more responsible for missing a future promotion (Studies 1 and 2). Study 2 also shows that participants' preference for products associated with a past miss decreases when they know they will not encounter the future miss (promotion). Study 3 shows this preference also decreases when the product is utilized before the future miss becomes available. Finally, in a non-promotion context, Study 4 demonstrates that people distance themselves from a future miss when they are responsible for the miss but not when another person is responsible for it. These findings are related to regret, inaction inertia and the psychology of discounts.

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## Introduction

Organizations that sell products or services use various types of promotions to entice consumers. The airline company KLM, for example, does so regularly: “During the World Deal Weeks KLM offers special discounts on flights to around 100 destinations. From city trips within Europe to a safari in Africa or a sun-kissed holiday in the Caribbean, the World Deal Weeks offers are available twice a year” (retrieved from <http://worlddealweeks.klm.com/> at October 2, 2014). These weeks typically take place in January and September. Although consumers may appreciate such discounts, these discounts may also cause annoyance and frustration, for instance, when one wants to book a flight and discovers the promotion just ended.

Such negative reactions are an example of the more general finding that decision makers are affected by missing an attractive opportunity to such an extent that they are less likely to act on subsequent slightly less attractive opportunities—a phenomenon called inaction inertia (Tykocinski, Pittman, & Tuttle, 1995). This tendency to forego action because of an initial failure to act on a better opportunity is well documented, wide ranging, and robust (e.g., Arkes, Kung, & Hutzel, 2002; Kumar, 2004; Zeelenberg, Nijstad, van Putten, & van Dijk, 2006; for a comprehensive review, see Van Putten, Zeelenberg, van Dijk, & Tykocinski, 2013). For

example, Tykocinski, Israel, and Pittman (2004) devised a computer stock market simulation game and found that investors who had missed an opportunity to escape a bear market, and were now facing a significant loss, were less likely to cut their losses and sell the stock compared to investors (facing the same magnitude of loss) who had never had a previous opportunity to sell, or those whose loss was more modest. Finally, Butler and Highhouse (2000) asked participants to imagine being the owner of a small business that missed the opportunity of being bought out by a big company for a good price. Participants did not want to accept a subsequent lower offer from the same company, but were somewhat more willing when it came from a different company. Interestingly, the reactions to these offers correlated highly with a measure of regret. This brief review suggests organizations should be aware of how missed opportunities affect the feelings and behaviors of decision makers.

In the current research, we add to literature on missed opportunities by addressing a not-yet studied but potentially strong effect of missed opportunities. We examine the effects of opportunities that will be missed in the future. Let us explain what we mean. We earlier referred to KLM having regular World Deal Weeks. Many KLM customers are familiar with the World Deal Weeks, especially the loyal customers. Hence, they know that when they book a flight in the beginning of the summer or the beginning of the winter, they will likely end up paying too much (i.e., compared to the price offered during the deal period).

Research remains mute with respect to whether we can simply generalize the effects of missed opportunities, to opportunities

\* Corresponding author.

E-mail addresses: [shanivya@tau.ac.il](mailto:shanivya@tau.ac.il) (Y. Shani), [shaid@post.tau.ac.il](mailto:shaid@post.tau.ac.il) (S. Danziger), [M.Zeelenberg@uvt.nl](mailto:M.Zeelenberg@uvt.nl) (M. Zeelenberg).

that will be missed in the future. Will these two types of missed opportunities exert a similar impact on decision makers, or is one more influential than the other?

We may encounter situations in which the missed opportunities are pitted against each other and we have to choose one of those two evils. Imagine that while planning a weekend out to either Madrid or Paris, you discover that your favorite musician is doing a European tour and he is not visiting your home country. You find out he will play in Madrid two days before your expected trip and in Paris two days after. Unfortunately, you cannot reschedule your trip because of work related constraints. You realize you will be thinking about missing his show whether you go to Madrid or to Paris. But which would be worse? And would it influence your choice regarding where to go? Everything else being equal, would you prefer to go to the city where your thoughts will bother you the least? We address this question in this research.

Extrapolating from the findings concerning missed opportunities and a large body of research on counterfactual thinking and pre-factual thinking, we strongly believe decision makers appreciate being confronted with a missed action opportunity in the future less than being confronted with one in the past, and that they will choose to shield themselves from such regret-inducing information. Examining reactions to such future action opportunities is important theoretically and practically. It is of theoretical interest because it may provide novel insights regarding how decision makers cope with decision regrets in various real-world situations. Additionally, examining this question may help us resolve a current discussion in the academic regret literature about the determinants of regret intensity. The practical interest stems from the fact that in today's world of unlimited opportunities, decision makers in a wide variety of domains confront not only action opportunities they already missed, but also action opportunities they will miss when they select a current opportunity. Insight into the prevalence and seriousness of such decision makers' reactions to missing opportunities (now and in the future), and in the psychological processes that underlie these reactions, may help battle the negative consequences for the individual decision maker and the organizations in which they are embedded.

We examine how decision makers choose between courses of action associated with already missed and to-be-missed opportunities. Already missed opportunities provide regretful counterfactuals ("I know I could have made a better decision!"), and opportunities that will be missed in the future are linked with such prefactual thoughts ("I know I will find out that there would have been a better decision!"). Based on our reading of the literature, we identified different factors that may influence the intensity of regret with respect to missed action opportunities, and on the basis of this information, we predict that future misses elicit more regret than past misses. This finding would imply that these understudied occurrences of frustrating confrontations with action opportunities people will encounter in the future (finding out that postponing a decision to a later time would have led to a better outcome) might be even more impactful than action opportunities they missed in the past. We develop this line of reasoning in the next section.

Our research contributes to existing literature in various ways. By showing that people purposefully choose actions associated with the opportunities missed in the past so that they can shield themselves from the painful information provided by opportunities that occur in the future, we provide novel insights into the psychology of missed opportunities. These insights may help individual and organizational decision makers cope with such events. For example, they may help marketers better select their promotion strategies so that they do not alienate their consumers. In addition, our research addresses one of the fundamental questions relating to the determinants of decision regret. Some have argued that the intensity of

regret is primarily driven by the opportunity to undo the regret in the future (Roese & Summerville, 2005; Summerville, 2011). This approach, the future-opportunity principle, stresses the forward-looking aspect of regret, and links regret to ameliorative behaviors (cf. Zeelenberg, 1999). It resonates with the popular sayings "don't cry over spilt milk" and "what's done is done". Of course, crying over spilt milk is useful when doing so prevents similar mistakes in the future, but according to the future-opportunity principle, the regret will be less intense if the problem that caused the regret cannot be solved anymore. The other approach, the lost-opportunity principle, stresses that regret is most intense when people realize they had ample opportunity to make a different choice in the past but did not (Beike, Markman, & Karadogan, 2009; Markman & Beike, 2012). We believe that the question we study, asking whether having missed an opportunity or missing it in the future is more impactful, is informative about the strength of the future-opportunity principle relative to the lost-opportunity principle. We return to a discussion of the relation between our research and these principles in Section 'General discussion'. We first explain in more detail why we expect future misses to have more impact.

### Future misses, past misses, and regret

Research has identified several factors that contribute to the experience of regret (Zeelenberg & Pieters, 2007), and we discuss four of them that lead us to predict that future misses have more impact than past misses. The first factor is responsibility. We contend that decision makers generally feel they have more control over avoiding future misses than past misses. Consistent with the functional notion of regret, being more in control of what has yet to occur should make people feel more responsible for a future opportunity they decide to miss (see also Caruso, 2010). Because responsibility is a prime determinant of regret (Zeelenberg, Van Dijk, & Manstead, 2000), failing to prevent a future miss from happening should result in stronger regret compared to a past miss that cannot be undone. Moreover, people generally prefer being able to reverse their decisions (Gilbert & Ebert, 2002; Kirkeboen & Teigen, 2011) and keeping options available as long as possible (Shin & Ariely, 2004). Thus, "closing a door" on an opportunity that has not yet become available may be particularly painful. Thus, we propose that one reason future misses elicit more regret than past misses is that people feel more control over the future than over the past, and therefore feel more responsible for the future.

A second factor that contributes to the intensity of regret is the ease with which people can imagine better counterfactuals. Quoting Kahneman and Miller (1986), "Outcomes that are easily undone by constructing an alternative scenario tend to elicit strong affective reactions (p. 145)". The future, by definition, is more mutable than the past. We contend that imagining alternative outcomes is easier (and regret is therefore stronger) for future misses one can potentially avoid than for past misses one cannot avoid (see also Gu, Botti, & Faro, in press). Similarly, the future-opportunity principle suggests the *attention* people pay to the potential of preventing a missed opportunity should lead to intense regret (Roese & Summerville, 2005). Consistent with this proposal, Caruso (2010) found that people judge transgressions that are about to happen (events that can be avoided) more negatively than identical transgressions that have already happened. Also, Gilbert and Ebert (2002) found that photography students who could change their minds about which prints to keep liked the prints they kept less than students who could not change their minds. In sum, because future misses still have to occur, people may overestimate their mutability, and therefore future misses should elicit more regret than past misses.

A third factor that may influence the intensity of regret is found in the research on affective forecasting: people overestimate the impact of negative events on their feelings and their ability to cope with them (Wilson & Gilbert, 2003). Negative emotions concerning events that still have to occur are generally predicted to be more intense and longer lasting than the actual emotional reaction to the event. If people overestimate the intensity and duration of the emotional distress a future miss causes them, we expect they will prefer a product associated with a past miss, for which regret may have already dissipated and that is not subject to overestimation.

A fourth and related factor that may influence the intensity of regret has to do with recovery from a miss. We think people can only fully recover from a regretful event once the event has happened. They will not efficiently cope with a miss that has yet to happen, and the associated regret can last a long time. People can start regretting a choice before they know the outcome (Kirkeboen & Teigen, 2011), and may feel it most intensely when they know the outcome and counterfactual. The psychological immune systems accelerate people's recovery from negative experiences once they have happened and not before (Wilson & Gilbert, 2003). These processes allow people to recover from their negative emotional state by rationalizing and sense making.

In summary, based on our reading of the literature, we make the following predictions:

- H1.** Future misses elicit more regret than past misses.
- H2.** People feel more responsible for future misses than past misses.
- H3.** People prefer products associated with a past miss to products associated with a future miss.

### Overview of the experiments

Four studies examined how people choose between options associated with opportunities missed in the past and those missed in the future.<sup>1</sup> In Study 1, we find that people prefer purchasing a product that was discounted to a product that will be discounted. This study also demonstrates that people expect to experience more regret and feel more responsible for the miss if they purchase a product associated with a future miss (discount). Study 2 demonstrates people expect to experience more regret for a future miss (discount) when they know they will visit the store when the discount is offered than when they know they will not visit the store. The study also shows that expecting to encounter a future miss (promotion) increases one's tendency to prefer a product associated with a past miss. Study 3 shows that participants' preference for a product associated with a past miss over a product associated with a future miss decreases the more the product is utilized before the future miss becomes available. Product utilization appears to serve as a good justification for missing the future opportunity (e.g., "I had to buy the product now"), something that should reduce responsibility and regret for the future miss. In Studies 1–3, participants chose between virtually identical products or between virtually identical stores. In Study 4, we manipulated responsibility for a miss, examined choice between two different future events associated with misses, and extended our investigation to a non-promotion context. Participants

chose between two vacation destinations and were told that their favorite rock band had performed at one of the destinations a couple of days before they would arrive, and at the other destination, a couple of days after they would leave. We find that participants distanced themselves from the vacation destination associated with a future miss only when they imagined they were responsible for the miss and not when their friend was responsible for the miss.

### Study 1: People prefer products associated with a past miss over a future miss

Study 1 tested the prediction that people prefer a product associated with a past miss to a product associated with a future miss, and that purchasing a product associated with a future miss elicits more regret and a greater sense of responsibility for the miss.

We aimed at 30 participants per condition. Sixty students received 10 NIS (equivalent to 2.5\$) for participating. They were offered an opportunity to actually purchase a discounted coffee mug for 5 NIS instead of the regular 20 NIS. Participants learned that two importers (Golan and Danon) sell the mug and that both subsidize the current offer for 5 NIS. Approximately half of the participants were then told that Golan had offered the mug for 2.5 NIS the previous week and that Danon would offer it for 2.5 NIS the following week, and the other half were told that Danon had offered the mug for 2.5 NIS the previous week and that Golan would offer it for 2.5 NIS the following week. Participants then purchased Danon's mug, Golan's mug, or neither (18 of them did not buy a mug). Put differently, participants indicated whether they preferred the mug associated with a past miss or a future miss. Then in two separate questions, we asked participants to indicate which option would elicit the strongest feeling of *regret* and of feeling *responsible* for missing out on the discount opportunity ("Paying 5 NIS for a mug that was sold for 2.5 NIS", "Paying 5 NIS for a mug that will be sold for 2.5 NIS", and "I would feel the same whether I paid 5 NIS for a mug that was sold or will be sold for 2.5 NIS"). Last, we asked participants to indicate which importer sells a higher-quality product (Danon, Golan, equal quality).

Mug choice shares appear in Table 1. Because choice shares were not significantly affected by which importer had discounted the mug in the past,  $\chi^2(1, N = 42) = 0.467$ , we collapsed over the two pairings (Golan discounted the mug in the past and Danon discounted the mug in the past). As predicted, significantly more participants purchased a mug from the importer that had discounted it (50%, 30 out of 60) than from the importer that was going to discount it (20%, 12 out of 60),  $\chi^2(1, N = 60) = 11.87, p < .005$ .

Tables 2A and 2B show participants' feelings of regret and responsibility. Whether we analyze the data for all 60 participants, including those who did not purchase a mug (Table 2A), or only the 42 participants that purchased a mug (Table 2B), we find that the majority of participants indicated they would experience more regret and a greater sense of responsibility if they purchased the mug that would be discounted. Finally, the vast majority of participants who purchased a mug (38 out of 42) evaluated the quality of the mug sold by the two importers to be the same. Thus, differences in perceived quality cannot explain why participants preferred to purchase the mug that was discounted in the past.

**Table 1**  
Study 1: Mug purchase decision by the type of promotion missed (past vs. future).

	Golan was missed (Danon will be missed)	Danon was missed (Golan will be missed)
Purchase Golan	16 (53.3%)	7 (23.3%)
Purchase Danon	5 (16.7%)	14 (46.7%)
Neither	9 (30%)	9 (30%)
Total	30 (100%)	30 (100%)

<sup>1</sup> In each study, we report our stopping rule and the number of observations we excluded. We report all experimental conditions and measures except for one measure ("feeling like a sucker for missing out on discount opportunity") that our reviewers suggested we exclude because it lacked theoretical justification.

**Table 2A**  
Study 1: Expected level of regret, and sense of responsibility for missing a discount, by the type of promotion missed (past vs. future).

	Strongest feeling of (DV'S)	
	Regret	Responsibility
Pay 5 NIS for a mug that was discounted	16 (26%)	17 (29%)
Pay 5 NIS for a mug that will be discounted	31 (53%)	32 (53%)
I would feel the same whether I paid 5 NIS for a mug that was discounted or will be discounted for 2.5 NIS	13 (21%)	11 (18%)
$\chi^2$	$\chi^2$ (2, N = 60) = 9.30, p < .010	$\chi^2$ (2, N = 60) = 11.70, p < .003
Total	60 (100%)	60 (100%)

**Table 2B**  
Study 1: Expected level of regret, and sense of responsibility for missing out on an attractive opportunity, by the type of promotion missed (past vs. future) when including only the 42 participants that purchased a mug.

	Strongest feeling of (DV'S)	
	Regret	Responsibility
Pay 5 NIS for a mug that was discounted	9 (21%)	11 (26%)
Pay 5 NIS for a mug that will be discounted	25 (60%)	25 (60%)
I would feel an identical feeling of X regardless of the company from which I purchased the mug	8 (19%)	6 (14%)
$\chi^2$	$\chi^2$ (2, N = 42) = 13.00, p < .002	$\chi^2$ (2, N = 42) = 13.85, p < .001
Total	42 (100%)	42 (100%)

**Study 2: Experiencing a future miss increases regret and preference for a product associated with a past miss**

We also predict future misses elicit more regret than past misses because they force people to confront their regrets whenever they encounter the missed opportunity. Thus, we predict regret will be more intense when, for example, one expects to re-enter a store where a product was purchased and be reminded that they purchased the product at a less attractive price (cf. Tykocinski & Pittman, 1998).

In Study 2, we pitted future miss conditions, in which participants either expect to enter the store when the discount will be offered or expect not to enter the store when the discount will be offered, against a past miss. Students participated for course credit. They were randomly assigned to one of two between-subject conditions: Enter vs. Do Not Enter the store when the item will be promoted. We aimed at and got 30 participants per condition.

They read the following scenario (translated from the original Hebrew):

For a while, you have been considering purchasing a coffee mug. This morning at the cafeteria you see one you like priced at 25 NIS. The salesperson explains that two different importers (A and B) import the mug. He further explains that because both importers wish to promote the mug, they occasionally offer it for 12.5 NIS. Specifically, importer A offered the mug for 12.5 NIS *two weeks ago*, whereas importer B will offer the mug for 12.5 NIS in *two weeks' time*. Because you want the mug now, you must pay the regular price of 25 NIS.

Next, we asked participants in the Enter condition to imagine entering the store two weeks later holding their new coffee mug while importer B's mug is offered for 12.5 NIS. Participants in the Do Not Enter condition were asked to assume that because they

do not usually visit that store, they will not visit it while importer B's mug is offered for 12.5 NIS.

Participants indicated what would cause them to experience the strongest feeling of *regret*, what would cause them to feel more *responsible* for missing the discount, and indicated which importer's mug they would prefer purchasing (all on: -5 = *Purchasing from importer A, who offered the mug four weeks ago for 12.5 NIS*, 5 = *Purchasing from importer B, who is offering the mug now for 12.5 NIS*).

We found a marginally significant effect of entering the store (or not) on regret,  $F(1, 58) = 3.41, p = .07, \eta^2 = .056$ . Participants who expected to enter the store on the day of the promotion indicated they would experience more regret ( $M = 2.13, SD = 2.19$ ) than participants who did not expect to enter the store ( $M = 1.10, SD = 2.13$ ). Interestingly, regret scores differed significantly from the midpoint of the scale (0) in both conditions,  $t's(29) > 2.81, p's < .01$ , showing that purchasing a mug from importer B, who would discount it in two weeks, elicits stronger regret than purchasing it from importer A, who discounted it two weeks ago.

We found no effect of entering the store (or not) on responsibility, ( $M_{\text{enter}} = 1.13, SD = 2.90; M_{\text{not enter}} = 1.30, SD = 2.52, F(1, 58) = .056, ns$ ). We did find that responsibility scores differed significantly from the midpoint of the scale (0) in both conditions,  $t's(29) > 2.13, p's < .041$ , showing that as in Study 1, participants felt more responsible for a future miss than for a past miss.

Finally, we found a significant effect of entering the store (or not) on choice preference,  $F(1, 58) = 5.25, p < .026, \eta^2 = .083$ . Participants who expected to enter the store on the day of the promotion preferred purchasing importer's A mug ( $M = -1.5, SD = 2.37$ ) more than those who expected not to enter the store ( $M = -0.10, SD = 2.36$ ). Comparing these values to the scale midpoint of 0, we find that only participants that expected to visit the store distanced themselves from the mug of the importer that would discount it while they visited the store ( $M_{\text{enter}} = -1.5, t(29) = -3.48, p < .002; M_{\text{not enter}} = -0.1, t < 1$ ). Thus, when participants were explicitly informed they would not encounter the future miss, they did not prefer purchasing the mug from the importer that had discounted the mug to the importer that was going to discount it, because in such situations, avoiding the mug associated with a future miss served no purpose.

**Study 3: Product utilization eliminates the preference for past misses**

As we have reviewed, the ease with which people can imagine more favorable alternative realities is one of the main factors driving the intensity of regret. We proposed that people can more easily imagine "undoing" future misses than past misses, which is one of the reasons future misses elicit more regret than past misses. This prediction is consistent with findings that show that people feel more control over the future than over the past (Vosgerau, Wertenbroch, & Carmon, 2006). We therefore propose that if one construes a future miss as being inevitable, he or she should experience less regret for having missed it. We propose that "using" a product sufficiently before the future miss becomes available will indicate to participants that they had no choice but to purchase the product before the future miss became available. By contrast, not having "used" the product sufficiently before the future miss becomes available will indicate to participants that they may have been able to avoid buying the product before the future miss became available. In summary, we predict the following:

**H4.** Preference for a product associated with a past miss over a product associated with a future miss will decrease the more the product is utilized before the future miss becomes available.

## Method

During a two-week period, two seminar students independently approached 173 students at several university campus locations and randomly assigned them to two product-utilization conditions: 5% (hardly utilized) vs. 95% (almost fully utilized). Participants read the following scenario (manipulation appears in parentheses)(translated from the original Hebrew):

Imagine you must print a seminar paper that is due tomorrow. You have an HP printer that is out of ink. To submit the paper on time, you must purchase a new printer cartridge immediately. You know the cartridge's list price is 200 NIS. To print the paper, you will probably need to print a number of pages that will use up approximately 5% (95%) of the cartridge. Hence, the cartridge will not be drained (will be nearly drained) when you are finished printing your seminar paper. You learn that two stores sell the cartridge, and that store A sold it for a 30% discount a week ago, whereas store B will sell it for a 30% discount next week. Because you need the cartridge today, you have to pay the list price for the cartridge (200 NIS).

Next participants read the following:

You realize that if you purchase the cartridge today, you will pay 200 NIS instead of paying the discounted price. If you had to choose between the two stores, you would:

*Option 1:* Purchase from store A (where the cartridge was on a 30% discount last week).

*Option 2:* Purchase from store B (where the cartridge will be on a 30% discount next week).

## Results

As predicted, item utilization,  $\chi^2(1, N = 173) = 3.98, p = .046$ , affected participants' choice regarding where to buy. When participants expected to utilize only 5% of the cartridge, 58 out of 85 (68.2%) indicated they would purchase the cartridge from the store that discounted it a week ago (Store A), which differs from chance,  $\chi^2(1, N = 85) = 11.30, p = .001$ . Yet when they expected to utilize 95% of the cartridge, only 47 out of 88 (53.4%) indicated they would purchase the cartridge from store A, which does not differ from chance,  $\chi^2(1, N = 88) = 0.40, p = .52$ . Apparently, when an item is utilized before the future opportunity becomes available, participants felt the (future) miss was inevitable, and purchasing the cartridge at its regular price was justified.

### Study 4: The role of responsibility

The results of Studies 1–3 demonstrate that people prefer options associated with past misses to options associated with future misses. Further, our findings indicate that future misses elicit more regret, and that the more easily people can justify the future miss, the less they feel the need to distance themselves from it. Literature has documented that responsibility contributes to feelings of regret (Zeelenberg et al., 2000). If increased responsibility for the future miss is a key factor driving participants' preference for a past miss, we expect to find participants prefer the option for which they feel less responsible, even in a choice between options associated only with future misses. In Study 4, we tested this notion by manipulating whether participants felt they or a friend were responsible for missing a future opportunity (going to a concert of a favorite band). We predicted that when participants feel responsible for a miss, they will distance themselves from this miss, by choosing the competing alternative

associated with a miss not under their control (similar in a sense to a past miss). By contrast, we predicted that when participants think a friend is responsible for the miss, they will not feel a need to distance themselves from it.

The study also achieved two secondary aims: first, to demonstrate that an association with a regretful future miss can sway choices even between qualitatively different options (in Studies 1–3, the options associated with past and future misses were almost identical); and second, to generalize our effect to a non-promotion context.

## Method

The study used a 2 (Imagined Regret: Before vs. After)  $\times$  2 (Responsibility for the miss: Self vs. Friend) between-subjects design. We aimed at 30 participants per condition and had 120 in total. They were students who participated for course credit. Participants read the following scenario (manipulation in parentheses)(translated from the original Hebrew):

Assume your two most favorite cities in Europe are Paris and Madrid. Because you wish to visit both cities, you check for available flights. Considering several work-related constraints, you realize that the only flights to these destinations leave at the same time from Israel, return at the same time to Israel, are in airplanes of the same type, and are sold at the same price. You find it hard to choose whether to fly to Paris or Madrid.

While considering where to fly, you hear that your favorite band is on tour and has a concert in both cities. When you check for concert dates, you find that the concert in Paris will take place one day after you will leave Paris, assuming you decide to fly there, and the concert in Madrid will take place one day before you arrive in Madrid, assuming you decided to fly there. Thus, you will miss the concert whether you fly to Paris or Madrid.

In fact, you could have left two days later (arrived two days earlier), in which case you could have gone to the concert in Paris (Madrid). However, because you (the friend with whom you are flying) forgot to send an email to your (his) boss on time, it is now too late to change the dates of your flight.

Next, participants read, "It is clear that you will miss your favorite band's concert whether you fly to Paris or to Madrid. Nevertheless, what city would you rather visit: (1) Paris (where the concert will take place one day *after you leave*) or (2) Madrid (where the concert will take place one day *before you arrive*)". Finally, we asked participants to indicate which airline they thought is of higher quality (the airline that flies to Paris; Madrid; no difference between the airlines).

## Results

We excluded three participants from the analysis because they indicated the airline that flies to Madrid is of higher quality (the pattern is the same when we included these participants in the analysis). Choices for the remaining 117 participants appear in Table 3. When participants imagined they were responsible for not being able to leave two days later and were therefore responsible for missing the concert in Paris, they preferred flying to Madrid (65.5%, 19 out of 29). Yet when participants imagined they were responsible for not being able to arrive two days earlier and were therefore responsible for missing the concert in Madrid, they preferred flying to Paris (63.3%, 19/30). The interaction was significant,  $\chi^2(1, N = 59) = 4.91, p = .027$ . Put differently, when participants felt they were responsible for missing the concert in a particular city, they preferred flying to the other city. By contrast,

**Table 3**

Study 4: Vacation destination (Paris vs. Madrid) by the type of imagined regret activated (before vs. after) and responsibility (you vs. a friend).

Responsibility		Could have arrived two days earlier	Could have left two days later
Participant is responsible	I would fly to Paris (where the concert will take place one day only <b>after you depart</b> )	19 (63.3%)	10 (34.5%)
	I would fly to Madrid (where the concert will take place one day <b>before you arrive</b> )	11 (36.7%)	19 (65.5%)
Friend is responsible	I would fly to Paris (where the concert will take place one day only <b>after you depart</b> )	18 (60%)	16 (57.1%)
	I would fly to Madrid (where the concert will take place one day <b>before you arrive</b> )	12 (40%)	12 (42.9%)

Significance of bold: Vacation destination.

when participants imagined their friend was responsible for not being able to leave two days later and was therefore responsible for missing the concert in Paris, they preferred flying to Paris, where the concert would take place a day after they depart (57.1%, 16/28) to Madrid, where the concert would take place before they arrive. Participants also preferred flying to Paris when they imagined their friend was responsible for not being able to arrive two days earlier and was therefore responsible for missing the concert in Madrid (60%, 18/30). The interaction in this case was not significant,  $\chi^2(1, N = 58) = 0.049, ns$ . These results show that people are more likely to distance themselves from a future miss for which they are responsible than for a future miss for which another person is responsible. This study also generalizes our findings to a non-promotion context.

## General discussion

We examined people's emotional and behavioral reactions to missed opportunities. The aim of our research was to study how people choose between options linked with past and future misses, or put differently, between options associated with past and future regret. Although such associations are objectively irrelevant, we find they can systematically sway choices such that when people feel responsible for a future miss, they distance themselves from it by choosing the option associated with a past miss. To our knowledge, we are the first to pit the two forms of regret against each other, and by so doing, demonstrate that a future regret one is aware of affects choice more heavily than a past regret.

In Study 1, we find that people prefer purchasing a product from a retailer that previously discounted the product to purchasing from a retailer that will discount it in the future. We also found that they feel more regret and responsibility for missing future discounts. Study 2 replicated these findings and finds the preference for missed over future discounts is weaker when people know they will not physically encounter the future miss (opportunity). Study 3 revealed that participants' distaste for a product associated with an opportunity they will miss lessens when they expect to utilize the product before the future miss (opportunity) becomes available. Study 4 extended these findings to a non-promotion context and moreover found that people were more likely to distance themselves from a future miss for which they were responsible than for a future miss for which another person was responsible.

### Reasons for preferring missed to future misses: a follow-up study

Note that in Studies 1 and 2, we explicitly asked participants to indicate which choice option would elicit more regret and responsibility for missing out on a discount. By doing so, we increased the relative accessibility of regret and responsibility as possible explanations for participants' importer (Study 1) and store choices (Study 2). To gain a better understanding of the relative accessibility of the factors that drive participants preference for an option associated with a past miss over an option associated with a future miss, we conducted a follow-up study using the hardly-utilized-cartridge

condition of Study 3, in which we asked participants to explain their store choice (from which store to purchase the cartridge) in an open-ended format. Consistent with Study 3 results, the majority of participants chose to purchase the cartridge from the store that had discounted it in the past (66%; 74 out of 111),  $\chi^2(1, N = 111) = 12.33, p < .0001$ . More importantly, though, about a third of these participants mentioned regret-related reasons (28%; 21/74). By contrast, only 2% (1/37) of the participants that chose to purchase the cartridge from the store that would discount it mentioned a regret-related reason. Thus, we again find that avoiding regret is more strongly associated with choosing an option associated with a missed opportunity than a to-be-missed opportunity. Interestingly, the majority of participants that chose to purchase from the store that would discount the cartridge mentioned they would return the cartridge to the store or would demand the discount (51.35%; 19/37). Because our instructions clearly specified the product could not be returned and that getting the discount would be impossible, this finding suggests participants' persistence may reflect the difficulty they had with *imagining* losing a future discount opportunity, something that would enhance their sense of responsibility, even to the extent of distorting reality.

### Theoretical and practical implications and future research

Our studies reveal that knowledge of missed opportunities may influence decision makers' feelings, judgments, and decisions. We proposed and found that people feel more regret about missing opportunities in the future than having missed them in the past, because future misses are easier to imagine, more mutable, and come with more responsibility. The existence of a systematic difference in people's reactions to past and future misses has a number of theoretical and practical implications.

#### Theoretical implications

Previous research has addressed the effects of both retrospective regret (which applies to past misses) and of anticipated regret (which applies to future misses). Although the retrospective regret literature has often been applied to the effects of already missed opportunities (Zeelenberg & Pieters, 2007), research on anticipated regret has yet to address how people cope with future misses that will happen for sure. To our best knowledge, no one has pitted the two forms of counterfactuals against each other. Considering the abundant research concerning regret, its components, characteristics, and its meaning for people's daily decisions, we contend that understanding the common and distinct mechanisms underlying the experience of regret when missing a past opportunity (a definite loss) and when expecting to miss a future opportunity (which focuses one's attention on the ongoing loss of an opportunity) is important.

Importantly, in our research, we asked participants to compare the two situations: already missed and to-be-missed opportunities. From ample research, we know that people's preferences may differ under separate evaluation (evaluating each counterfactual in isolation) and joint evaluation (preference between the two

counterfactuals, which we studied) (Hsee & Zhang, 2010). Under joint evaluation, competing options serve as a clear reference point for evaluating cared-about attributes. In the present research, we find that under joint evaluation, people feel more control over future than past misses and they try to strategically dissociate themselves from future misses by choosing options associated with past misses. We do not know yet if this difference in already missed and to-be-missed opportunities would be equally strong in the case of separate evaluation. Both misses are annoying and frustrating, so in separate evaluation, the differences might be less pronounced. We have no theoretical reason, however, to expect a reversal of preferences under separate evaluation.

Our findings and interpretation for why a future miss is more painful than a past miss adds to some recent research demonstrating people tend to judge a future unethical behavior as less moral than a past unethical behavior (Caruso, 2010). Caruso suggests that because a primary function of emotion is to prepare organisms for action (Frijda, 1986), and because organisms can typically act on future events more successfully than past events, the emotional bias toward the future may be an overgeneralized response to future situations even when these situations are not actually under one's control. Similarly, Parfit (1984) argues that the "bias towards the future" is justifiable because whether events are in the future in most cases correspond to whether we can affect them.

Returning to the study of regret, an emotion that may guide us not to make the same mistake again in the future, our findings suggest people experience future regret more heavily because they can typically control future events and avoid future misses. Failing to avoid something we believe can be avoided (even when it objectively cannot) elicits a strong feeling of regret. As hinted at in the introduction, this finding is relevant for understanding the relative impact of the future-opportunity principle (Roese & Summerville, 2005; Summerville, 2011) and the lost-opportunity principle (Beike et al., 2009; Markman & Beike, 2012). We found that in a direct comparison of the two regret-eliciting situations, people are more influenced by the regrets that have yet to come. Please note that we do not claim that lost opportunities are irrelevant in the elicitation of regret, but in the present case, future opportunities are a bit more impactful. This claim fits nicely with a functional approach of regret (Zeelenberg, 1999) and reveals the experience of regret is over-determined in the sense that it can stem from different mechanisms or processes that operate jointly. Both the future-opportunity principle and the lost-opportunity principle may explain regret. These principles may each be sufficient but not necessary causes for regret to be experienced.

#### *Practical implications and future research*

From an organizational perspective, the decision regarding whether to inform people of upcoming special opportunities (e.g., promotions and benefits) or missed opportunities is important. Advertising a special opportunity ahead of time increases the likelihood that customers will learn about and take advantage of the opportunity. But advance notice can lead to "leaving money on the table", because it may cause people to defer choice and is likely to decrease the likelihood that they will choose an offering in its regular state (when it is not associated with an opportunity). Our research suggests that one reason people do so is to avoid the regret they will feel for having been responsible for missing the future opportunity. Our results highlight the complexity of informing people of missed or to-be-missed opportunities. Both misses (and the regret they elicit) may guide people to choose products that are not "blemished" by these negative associations. In the context of supermarket retailing, for example, Danziger, Hadar, and Morwitz (2014) find a choice share advantage for an Every-Day-Low-Pricing (EDLP) retailer that offers a constant price (does not discount) over a Hi-Lo retailer that offers large discounts infrequently. Consumers

in this study may have found the EDLP retailer more attractive than the Hi-Lo retailer because it was not associated with concerns regarding whether a past or future opportunity was missed.

Importantly, our results indicate that if the organization can provide people with a good justification for why they do not have to capitalize on the future opportunity (and to a lesser extent, are not responsible for a past miss) the negative feelings associated with the miss diminish. Organizations should therefore be particularly wary of advertising future opportunities for types of offerings for which justifying a future miss is difficult. For example, people may find it easier to justify missing a future opportunity for offerings that serve utilitarian goals than for those that serve hedonic goals (which many people find hard to justify purchasing in general). Finally, a person's mindset (which an organization could potentially prime) may also influence the extent to which past and future misses influence choice. Ma and Roese (2014), show that a maximizing mindset (getting the best) amplifies people's regret and dissatisfaction, and increases the likelihood that they will return and switch products. Future research could examine whether, under a maximizing mind-set, people's increased distaste for an option associated with a future miss (relative to an option associated with a past miss) is amplified.

In our present investigation, the choice sets contained competing objects from the same product category. Another interesting venue for future research would be to examine whether past and future misses have similar effects on choice in cases in which the choice options come from different product categories (e.g., choosing between new furniture and a vacation). In such cases, where comparing options on specific product features is not possible and choices are constructed on the spot, misses may sway choice even more robustly than for same-product-category choices.

Finally, though not directly related to misses and regret, another interesting avenue for future research would be to examine whether being aware of a past or future loss also sways choice. Imagine you are interested in buying a product that one retailer offered at a more expensive price last week and that a second retailer will offer at a more expensive price next week. Today, however, both retailers offer the product at the same price. Will your knowledge of the past and future losses sway your choice? Will you prefer purchasing the product from the retailer that will offer the product at a more expensive price next week, so you can savor your relative gain next week when the retailer offers the product at a more expensive price?

#### *Summary*

Psychologists and economists sensibly assume people want to be well informed about their past and future decisions, particularly when such knowledge can improve decision making. Yet we find that people respond more negatively to information about future (rather than past) opportunities they will miss. This negative response arises not because these opportunities are irrelevant to the individuals' decisions, but rather because knowing they are about to miss these opportunities, or are missing them, produces regret. These findings complement research that demonstrates how individuals might use information about missed opportunities, as well as their preferred choices, more as a means of feeling regulation than as empirical input into decision making (Shani & Zeelenberg, 2007). Understanding what form of regret people choose to experience (past vs. future) provides an upgraded perspective for evaluating peoples' expected satisfaction with their past and future decisions.

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