# FEARING THE FUTURE? FUTURE-ORIENTED THOUGHT PRODUCES AVERSION TO RISKY INVESTMENTS, TRUST, AND IMMORALITY

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Three experiments tested the behavioral effects of prospection on risk tolerance, trust, and moral judgment. While previous research shows that people generally hold positive beliefs about their futures, our analysis demonstrates that actively thinking about one's future engenders conservative behaviors to avoid potential losses or harm. In Experiment 1, writing about one's future self, compared to one's present self, caused people to favor low-risk, low-payoff investments rather than high-risk, high-payoff ones. In Experiment 2, restating sentences about the future (as opposed to the present) reduced behavioral trust. Participants shared less money with various partners in a potentially lucrative investment game. That same manipulation of prospection in Experiment 3 increased blame for misdeeds—while having no effect on praise for virtuous action. These finding suggest that, although people often hold optimistic beliefs about the future, prospection may lead people to behave cautiously as if wary about what could go wrong.

Keywords: prospection, uncertainty, risk, trust, moral judgment, blame

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Most people foresee a bright future. They overestimate the probability of positive outcomes and their ability to avoid negative outcomes. People commonly overestimate the likelihood that they will get married, graduate from college, or have successful surgery, and they routinely underestimate the probability that they will get divorced, become an alcoholic, or fall seriously ill (Shepperd, Klein, Waters, & Weinstein, 2013). Realistically, however, the future is inherently uncertain: Negative, disappointing, and even catastrophic outcomes remain possible.

The present experiments examined the behavioral effects of thinking about the future—what Gilbert and Wilson (2007) dubbed "prospection"—on financial risk tolerance, interpersonal trust, and moral judgment. Two theoretical perspectives generated contrary hypotheses about the effects of prospective thinking. The optimistic-future account suggests that prospective thinking will activate positive expectations and therefore should increase pursuit of potential gains and a positive, forgiving, risk-tolerant outlook. In contrast, the uncertain-future account holds that people are disturbed by the possibilities of future misfortunes. Therefore prospective thinking should heighten concern over potential losses or harms, leading to risk avoidance and heightened moral condemnation of misdeeds.

In many ways the optimistic-future account may appear intuitive. People reliably hold unrealistically favorable expectations about their futures (Shepperd et al., 2013; Stankevicius, Huys, Kalra, & Seriès, 2014; Weinstein, 1980). Further, experimentally inducing people to think of a positive future (e.g., visualizing a desired outcome) encourages goal pursuit and ambitious undertakings (Taylor, Pham, Rivkin, & Armor, 1998). Similarly, people who chronically think of positive futures (e.g., as in the case of optimistic people) are more risk tolerant compared to less optimistic people (Moore & Small, 2007).

Despite the intuitive appeal of the optimistic-future account, we suggest that the balance of psychological research argues against this perspective. First, evidence for the optimistic future account is limited to when people think about a positive or a desired future. Second, and more generally, negative events have stronger effects on cognition compared to positive ones (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001; Rozin & Royzman, 2001), and this effect is likely exacerbated by prospection. Indeed, Van Boven, Kane, and Peter (2009) showed that people are more easily able to generate worst-case counterfactuals for future events compared to present or past events.

We proposed that despite the positive illusions people may hold, when they actively think about the future they reflect on what is unknown or could go wrong (Baumeister, Vohs, & Oettingen, 2016). This reflection, in turn, might motivate caution, risk avoidance, and disapproval of antisocial actions that jeopardize future contingencies. We refer to this model as the *uncertain future perspective*. This perspective is supported by evidence showing that without sufficient awareness of potential obstacles, optimistic fantasies impair performance and result in negative outcomes (Oettengen & Mayer, 2002).

Thus, the uncertain-future view holds that prospection would cause people to focus on possible negative consequences. Consistent with this prediction, research shows that thinking about the future intensifies people's aversive reactions to imagined negative events (Bar-Anan, Wilson, & Gilbert, 2009). People have stronger emotional reactions to losses when they are framed as occurring in the future compared to the present or past (Caruso, 2010; Van Boven & Ashworth, 2007), and people have a stronger desire to punish future misdeeds relative to those that have just transpired (Burns, Caruso, & Bartels, 2012). Gelder, Hershfield, and Nordgren (2013) showed that prospecting caused people to avoid immoral behaviors, such as cheating, that could lead to potentially negative consequences.

Three experiments tested predictions derived from these competing perspectives by examining how future-oriented thoughts affected behaviors and judgments. Experiment 1 tested whether increasing prospective thought would affect risk tolerance in investment decisions. Experiment 2 tested the effect of prospection on trust, and whether thinking about the future would produce affect reactions to cues of trustworthiness. Experiment 3 examined the effect of prospection on moral judgments of blame and praise. The dependent variables in these experiments were chosen because they represent different conceptualizations of risk with clear implications for future outcomes.

Prospection is a broad concept that has been studied in various forms, including affective forecasting (Wilson & Gilbert, 2005), intention formation (Gollwitzer, 1999), and general thoughts about the future and one's future self (Gelder et al., 2013; Hershfield, 2011; Hershfield et al., 2011). The goal of the present studies was to examine the effects of increasing future thinking generally, rather than focusing on specific future events or states. We therefore selected manipulations of prospection that induce thinking about the future generally. Experiment 1 used a writing induction to manipulate prospection (Gelder et al., 2013, Study 1). Experiments 2 and 3 used a Velten (1968) thought induction task to manipulate thinking about the future. This procedure has been used successfully to influence broad constructs such as beliefs in free will (Vohs & Schooler, 2008) and mood (King, Hicks, Krull, & Del Gaiso, 2006; Velten, 1968).

## **EXPERIMENT 1**

Experiment 1 tested predictions derived from the optimistic-future versus uncertain-future accounts by investigating preferences for risky investments. It is widely agreed that risk and reward are correlated in investments, such that opportunities for large rewards are linked to higher risks of loss. The optimism account argues that when people think about the future they overestimate the likelihood of positive outcomes and underestimate negative ones. Therefore, they should favor the high-risk, high-reward options. In contrast, the uncertain-future account argues that when people think about the future they reflect on its inherent uncertainty, which would make them averse to risk.

## **METHOD**

*Participants.* Sample size was determined prior to data collection in this and all subsequent experiments. The stopping rule in all experiments was to stop data collection only when the predetermined sample had been obtained. In Experiment 1 the sample size was determined by conducting an a priori power analysis to determine the necessary sample size to detect a moderate effect (Cohen's d=0.40) with Power  $(1-\beta)=0.80$ . The analysis indicated a necessary sample size of 200. We recruited 200 participants from Amazon Mechanical Turk. Thirteen participants failed to complete the experiment and were therefore omitted from the analyses (final N=187; 108 female).

Procedure and Materials. Participants were randomly assigned to either a future or present condition. This task was adapted from Gelder et al. (2013). Participants spent 3–5 minutes writing a 100–300 word letter to either their present or future selves. In the present condition, participants wrote about their values and the present day's events ("Write about the person you are now and which topics are important and dear to you. When you write the letter to yourself, think about the events of the day today. Write about what you've done and what's happened to you today."). In the future condition, participants wrote a letter describing the values and daily events of their future selves 10 years from now ("Write about the person you will be in 10 years and which topics will be important and dear to your future self. When you write the letter to your future self, think about the events of that will happen 10 years from today. Write about what your future self will do and what happens to you then.").

Participants then indicated their current emotional state using the Brief Mood Introspection Scale (BMIS; Mayer & Gaschke, 1988). They also rated the degree to which they were currently thinking about the future ("I am currently thinking about the future": 0 Strongly disagree to 100 Strongly agree).

Next participants completed the outcome measure of risky investment decisions. Participants responded to four questions assessing their preference for different types of investments. In each question, possible responses ranged from being low risk and low reward to high risk and high reward. For example, in one decision participants imagined they had \$50,000 and had to invest it in an account that could not be changed for a year. They considered options that ranged from no risk and little reward (e.g., savings account) to high risk and high reward (e.g., a single stock of a brand new company).

#### **RESULTS**

*Manipulation Check.* We assessed whether the manipulation successfully altered future-oriented thoughts. As expected, there was a significant effect of condition, t(185) = 2.20, p = .029, d = .32. Participants in the future condition reported stronger future-oriented thinking (M = 77.9, SD = 20.8) compared to participants in the present condition (M = 70.6, SD = 24.3).

*Risk.* The four risk items showed good internal consistency ( $\alpha$  = .72). A linear transformation put the four risk items on a 10-point scale, and average risk was the main dependent measure. The data were consistent with the uncertain-future

account. Participants in the future condition favored significantly less risky investments (M = 4.41, SD = 1.68) than participants in the present condition (M = 4.94, SD = 1.82), t(185) = 2.06, p = .041, d = .30. Two one-sample t-tests against the scale midpoint (5.5) showed that participants in both the present and future conditions chose risks that were below the midpoint, indicating that our sample was broadly risk averse. The effect was larger in the future condition, t(91) = 6.23, p < .001, d = .65, compared to the present condition, t(94) = -3.01, p = .003, d = .31.

*Emotion.* An independent samples t-test showed no significant differences by condition for positive emotion, t(185) = 1.36, p = .18, d = .18, or negative emotion, t(185) = 0.99, p = .32, d = .14. Hence it is unlikely that the findings were due to changes in emotion.

## **DISCUSSION**

Experiment 1 supported the uncertain-future account. Thinking about the future heightened people's aversion to potential loss when considering risky investments. Rather than accepting larger risks in the hope of gaining larger rewards, people who focused on the future made decisions aimed at preventing loss.

Optimism about the future was nonetheless evident. Indeed, the majority of participants in the future condition (74%) wrote about positive experiences, including getting married, starting a family, or achieving professional success. These positive *expectations*, however, did not translate into optimistic *behavior*. Thus, it appears that while people expressed positive beliefs about their future, actively thinking about it caused people to choose cautiously.

#### **EXPERIMENT 2**

Experiment 2 examined the effects of prospection on trust. Trust is inherently risky, because it makes one vulnerable to loss if others fail to reciprocate trust. Experiment 2 adapted the trust game from behavioral economics (Berg, Dickhaut, & McCabe, 1995) wherein participants receive a sum of money and must decide how much to keep versus how much to invest in a partner.

Decisions about trust reflect the difference between optimism and uncertainty. To the extent that people overestimate the probability of positive future outcomes and their ability to avoid negative ones (Shepperd et al., 2013), they should be willing to entrust larger amounts of money in their partner with the expectation that the partner will repay their generosity. In contrast, people worried about possible losses should be less likely to display trust. The uncertainty account predicts that people who engage in prospection would send relatively little to the partner.

Yet perhaps trust versus distrust is too simple. Under some conditions, thinking about the future may affect people's use of trustworthiness cues, such as one's appearance. Willis and Todorov (2006) showed that people easily and reliably distinguish trustworthy from untrustworthy faces. If thinking about the future makes people optimistic, then they may ignore trustworthiness cues (because they do not

expect to be cheated) and trust both trustworthy and untrustworthy people equally. If, however, thinking about the future makes people feel uncertain, they should maintain their reliance on social cues (Van den Bos, 2009) and trust people who appear trustworthy more than people who appear untrustworthy. Thus, people might respond to heightened uncertainty not by thinking, "Don't trust anybody!" but rather, "Is this person trustworthy?"

Experiment 2 therefore manipulated cues to trustworthiness. Before playing the trust game, participants viewed an ostensible photograph of the other person. The photographs were preselected to appear exceptionally trustworthy or untrustworthy.

To increase generality, Experiment 2 also changed the manipulation of prospection. Participants read and rewrote sentences that referred to either the future or present. Velten initially developed this procedure for inducing mood states (1968), but others have adapted the procedure for inducing various other mental states, such as belief in free will (Vohs & Schooler, 2008).

## **METHOD**

*Participants*. We recruited 70 participants (57 female) from introductory psychology courses. One subject failed to complete the experiment and was omitted from the analyses (final N = 69). The sample size was determined prior to data collection based on the effect size from Experiment 1 (d = .30) with Power ( $1 - \beta$ ) = 0.80.

Procedure and Materials. Participants were randomly assigned to read and rewrite a set of 14 future- or 14 present-oriented sentences (e.g., "I find myself sometimes thinking about how my life might be in the future" vs. "I find myself sometimes thinking about what is going on in my life right now"). Participants read each sentence, thought about its meaning, and rewrote it in their own words. Following the Velten procedure, participants answered a manipulation check question: "I am currently thinking about the future" (1 Strongly disagree to 7 Strongly agree).

Participants then played 12 single-shot trust games with binding decisions, each with an ostensibly different partner (named Player 2 in each game; Berg et al., 1995). Participants made decisions about how much of an initial allocation of \$10 they wished to send to Player 2. Participants were told that whatever money they sent to Player 2 would be quadrupled, and Player 2 would decide how much money to send back to the participant. Last, participants were told that, in order to avoid biasing their decisions, they would not learn any of their partners' decisions until the end of the experiment, and that one of their decisions would be played for real money.

We manipulated (within subjects) the perceived trustworthiness of each partner using Todorov's maximally distinct facial stimuli. We selected faces that were normed to be  $\pm 2$  SD from the mean on perceived trustworthiness (Todorov, Dotsch, Porter, Oosterhof, & Falvello, 2013; Todorov & Oosterhof, 2011). Participants played six trust games with partners who appeared highly trustworthy (+2 SD on perceived trustworthiness) and six games with partners who looked quite untrustworthy (-2 SD on perceived trustworthiness). After participants completed

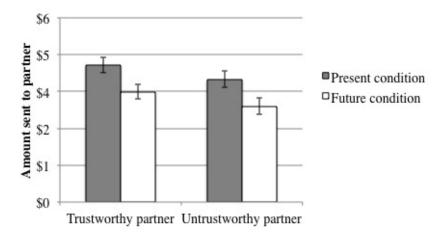


FIGURE 1. Thinking about the future led to reduced trust for both trustworthy and untrustworthy partners. Error bars =  $\pm 1$  SE.

all 12 trust games, they responded to a brief demographics questionnaire and were debriefed.

#### RESULTS

*Manipulation Check.* We first assessed whether the procedure successfully increased future-oriented thoughts by examining responses to our manipulation check question ("I am currently thinking about the future"). The data showed a significant effect of the manipulation, t(67) = 2.65, p = .01, d = .63. Participants in the future condition (M = 6.37, SD = .73) agreed more strongly that they were thinking about the future, relative to participants in the present condition (M = 5.68, SD = 1.36).

*Trust.* To test the primary hypothesis, we conducted a 2 (future vs. present, between subjects) × 2 (trustworthy vs. untrustworthy partner, within subjects) mixed-model ANOVA. There was a main effect of the prospection manipulation, F(1,67) = 7.33, p = .009,  $\eta^2 = .099$ . Participants in the future condition sent less money to their partner than did those in the present condition (Figure 1). There was also a main effect of the trustworthiness manipulation, F(1,67) = 8.72, p = .004,  $\eta^2 = .12$ . Participants sent less money when the partner appeared untrustworthy compared to when the partner looked trustworthy. This pattern supported the uncertain-future hypothesis and contradicted the optimistic-future hypothesis. The prospection × trustworthiness interaction was not significant, F(1,67) = 0.001, p = .98.

#### DISCUSSION

Experiment 2 provided further evidence that contemplating the future activates caution and uncertainty, rather than optimistic behavior. Participants who thought

about the future trusted others significantly less than participants who thought about the present. Thinking about the future, however, did not cause people to blindly withhold trust. Participants clearly understood and responded to the trustworthiness manipulation as indicated by the significant main effect.

In the previous studies we examined the behavioral effect of prospection when participants stood to gain or lose based on their decisions. It is possible that thinking about the future causes more risk-adverse behavior when one's personal welfare is on the line, but may play a smaller role in influencing judgments that primarily affect others. Thus, in the third study, we turned from financial decision making and interpersonal trust to study people's moral judgments of blame and praise toward others.

#### **EXPERIMENT 3**

In this experiment participants were asked to make judgments of praise and blame for various moral and immoral behaviors. We chose to study moral judgment because this domain allows us to test whether prospection affects judgments directed at others (rather than the self). The uncertain future account emphasizes people's attunement to future risks and costs. This theory therefore predicts that prospection should have asymmetrical effects on moral judgments of negative events (e.g., cheating on one's taxes) versus positive events (e.g., giving money to charity). Specifically, prospection should intensify blame for others' misdeeds, as punishing misbehavior may reduce one's own vulnerability to future immoral acts by others (see Caruso, 2010). Praise judgments should be unaffected by prospection because the presence or absence of future positive behavior does not cause harm or loss.

The results of Experiment 2 suggested that people thinking about the future still attended to important informational cues (e.g., trustworthy appearance). Experiment 3 sought to conceptually replicate that finding by examining whether people would differentiate between behaviors that another person (1) thought about, (2) desired, or (3) actually enacted. If thinking about the future increases caution but does not interfere with the ability to employ other cues to make judgments (as in Experiment 2) then people should differentiate among types of events—with the strongest judgments for actions and weaker judgments for desires and thoughts. In contrast, if thinking about the future causes blind caution and aversion to harm, then people should deliver equal blame regardless of whether an act was contemplated, desired, or enacted.

#### **METHOD**

*Participants*. We recruited 180 participants on Amazon Mechanical Turk. Seven participants did not complete the experiment, and their data were omitted from analyses. As in the previous experiments, sample size was set prior to data collection and stopping rules were identical to Experiment 2.

*Procedure and Materials.* We used the Velten procedure from Experiment 2 to manipulate prospection. Participants were randomly assigned to read and rewrite either future- or present-oriented sentences. Afterwards participants responded to the manipulation check question (To what extent do you agree with the statement: "I am currently thinking about the future": 1 Strongly disagree to 7 Strongly agree).

Following the manipulation check, participants read about 12 morally valenced behaviors. Half of the behaviors were morally positive (e.g., "Sophie gave out toys at the children's hospital at Christmas") and half were morally negative (e.g., "Felix smashed the rear window of a random parked car"). Participants made their judgments using a 0–5 Likert scale with endpoints: 0 (no blame) to 5 (a lot of blame) for negative behaviors, and 0 (no praise) to 5 (a lot of praise) for positive behaviors.

Within valence we manipulated whether the person (1) thought about the behavior (e.g., "Amber thought about setting fire to her house to get insurance money for it"), (2) desired the behavior (e.g., "Amber wanted to set fire to her house to get insurance money for it"), or (3) carried out the behavior (e.g., "Amber set fire to her house to get insurance money for it"). Each event type had two repetitions each, and all stimuli were counterbalanced so that participants never saw the same event more than once.

More concretely, each participant made judgments of 12 different events; 6 of those events were morally positive and 6 were morally negative. Within each valence, participants made judgments of two events where the person thought about acting; two events where the person wanted to act, and two events where the person actually carried out the action. Thus, Experiment 3 was a 2 prospection manipulation (future vs. present)  $\times$  2 event valence (moral vs. immoral)  $\times$  3 event type (thought, desire, action) mixed model design. Event valence and event type were manipulated within subjects, and prospection was manipulated between subjects.

## **RESULTS**

*Manipulation Check.* The Velten procedure successfully altered future-oriented thoughts, t(171) = 2.45, p = .015, d = .37. Participants in the future condition reported that they were thinking about the future more (M = 5.55, SD = 1.31) than participants in the present condition (M = 5.05, SD = 1.40).

*Prospection and Moral Judgment.* This study had two key predictions. First, consistent with the uncertain future hypothesis, prospection should intensify judgment of blame, but leave judgments of praise unaffected. Second, consistent with Experiment 2, we predicted that people's moral judgments (for both praise and blame) should respond to important informational cues, namely whether the behavior in question was merely thought about, desired, or actually carried out. A 2 prospection manipulation (future vs. present) × 2 event valence (moral vs. immoral) × 3 event type (thought, desire, action) mixed model ANOVA revealed the predicted interaction between prospection and event valence, F(1, 171) = 5.43, p = .021,  $\eta^2 = .03$ . There was also a significant main effect of event type, F(2, 341) = 77.55, p < .001,  $\eta^2 = .31$ . As predicted, moral judgments of blame and praise were strongest for actions (M = 3.86, SD = 1.47) and weaker for desires (M = 2.84, SD = 1.84) and

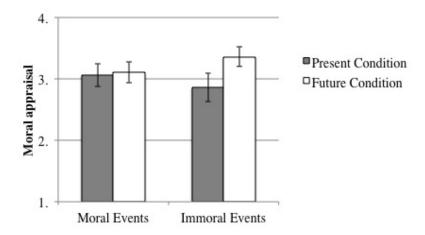


FIGURE 2. Thinking about the future (versus the present) led to increased blame for moral transgressions but did not affect praise for moral acts. Error bars =  $\pm 1$  SE.

thoughts (M = 2.58, SD = 1.92). The main effect of the prospection manipulation was not significant, F(1, 171) = 1.81, p = .18,  $\eta^2 = .01$ , and no other main effects or interactions were significant, Fs < 0.60, ps > .50.

Highlighting the asymmetric effects of prospection on moral judgments, planned comparisons within event valence showed that condition altered judgments of blame for immoral events, F(1, 171) = 4.32, p = .039,  $\eta^2 = .025$ , in that judgments of blame were harsher when thinking about the future (M = 3.36, SD = 1.56) compared to thinking about the present (M = 2.86, SD = 1.57; see Figure 2). The prospection manipulation had no effects on praise judgments of morally virtuous events, F(1, 171) = 0.05, p = .83,  $\eta^2 = .00$ . Judgments of praise did not depend on whether participants were thinking about the future, (M = 3.10, SD = 1.35), or the present, (M = 3.06, SD = 1.36).

# **DISCUSSION**

Experiment 3 demonstrated three key findings. First, it established further support for the uncertain future hypothesis by showing that prospection selectively intensifies moral sentiments, heightening moral judgments of blame, but leaving judgments of praise unaffected. Second, this study showed additional evidence that while prospection increases people's aversion to harm; it does not do so blindly. People instead paid careful attention to the contents of others' minds: whether a person was thinking about, wanted to, or committed a morally relevant act, and graded their moral judgments accordingly. Prospection preserved the greater condemnation of immoral acts than immoral thoughts, but it neither intensified nor diminished that difference. Third, this study demonstrated the breadth of prospection's effects on cognition, showing that prospection affects judgments directed at others, in addition to self-referential decisions.

#### GENERAL DISCUSSION

We began with two contrasting models of prospective thought, one invoking pervasive optimism, the other emphasizing uncertainty and its potential downside. Consistent with the weight of the empirical literature we reviewed, our findings consistently favored the latter: Three experiments found that increasing prospective thought led people to adopt more cautious, risk-averse responses. In Experiment 1, writing about one's future self resulted in people favoring low-risk, low-payoff investments rather than high-risk, high-payoff ones. In Experiment 2, restating sentences about the future (as opposed to the present) caused a reduction of behavioral trust, in that participants shared less money with various partners in a potentially lucrative investment game. That same manipulation of prospection in Experiment 3 caused an increase in moral blaming for misdeeds—while having no effect on praise for virtuous action.

Although the results contradicted the simple optimistic-future account and indicated a heightened concern with possible negative outcomes, prospection did not produce indiscriminate pessimism. When thinking about the future, people still favored seemingly trustworthy partners over less promising ones (Experiment 2), and they judged doing something immoral as worse than merely thinking about or merely wanting to do it (Experiment 3). Thus, thinking about the future did not cancel other influences on judgment.

Although a definitive resolution of the seeming contradiction between optimistic and pessimistic appraisals of the future is beyond the scope of what our findings permit, we offer a thought about how our findings can be reconciled with the pervasive optimism documented elsewhere (e.g., Waters et al., 2011). The future is inherently uncertain, insofar as it contains multiple possibilities but few certainties. Thus, thinking pragmatically about the future would require two things (see Baumeister et al., 2016, for a review). First, a person must be able to choose which future prospects are most desirable, and so thinking about the future begins with imagining what one wants to happen. This produces the optimistic assessment: The future holds something good (and optimistic confidence can motivate people to pursue it). Second, the person must recognize that alternative and relatively undesirable outcomes are possible. In order to attain a desired outcome, one must be on guard against such potential outcomes.

We suggest this pragmatic approach to prospection may have positive implications for the attainment of desirable future outcomes. For example, previous research shows that being willing to punish others for misdeeds leads to significantly better cooperative outcomes for both individuals and groups (Fehr & Gächter, 2002). Our data (Experiment 3) show that prospection increases people's willingness to engage in the costly act of allotting moral blame, and may therefore increase both individuals' and their community's wellbeing by discouraging future transgressions. Work by Gelder and colleagues points in this direction as well—having at-risk youth engage in future-oriented thought resulted in less espoused likelihood of engaging in delinquent behavior (Gelder et al., 2013). Thus, engag-

ing in cautious behavior after thinking about the future may actually help people avoid potentially harmful outcomes and increase the likelihood of positive ones.

The purpose of thinking about the future is to help bring about desired outcomes. But if one is to work toward those desired ends, one must be wary of what can go wrong. Despite revealing patterns of risk avoidance, reduced trust, and harsher moral judgments, we suggest that our findings may have an optimistic aspect. If one is never to strive toward goals and ideals, then one might as well blindly hope that all will be lovely. But if one is to strive, then blanket optimism is dangerous, because even though it might promote goal pursuit, heedless disregard of risks would reduce the chances of success. The fact that thinking of the future makes people wary of risks and condemning of misdeeds suggests that people do seek to pursue the good—and carefully.

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