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# Moral disengagement facilitates self-interested choices in environmental tradeoffs

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Despite widespread concern about environmental sustainability, people frequently choose financially beneficial but environmentally harmful options over costlier but more sustainable alternatives. Across four studies (total $N = 817$), we show that positive beliefs about greed and moral disengagement consistently predict self-interested, environmentally unsustainable choices in financially costly tradeoff situations. Moral disengagement does not operate primarily as a means of maintaining a positive moral self-image after making an unsustainable decision. Instead, preexisting moral disengagement provides a pathway for self-interested choices, resulting in greater pride and lesser guilt relative to those who choose the environment over self-interest. The perceived morality of tradeoff decisions operated similarly but did not fully explain emotional reactions. These findings suggest that moral disengagement, rather than explicit moral evaluation, plays a central role in shaping environmentally consequential decisions and the emotions that follow, offering insight into the psychological processes that sustain unsustainable behavior.

As the damaging effects of climate change continue to increase across the world, and the costs to lives, livelihoods, and property pose existential challenges, few would argue against the urgent need for solutions. Likewise, many people probably feel that to solve our problems, businesses must change their traditional "profit at all costs" approach and adopt more sustainable practices to prevent even worse outcomes to the natural world. Indeed, most people want to live sustainably, and over 60% of consumers claim to be willing to pay more for sustainable products[1]. However, there is a wide gap between claims and actions, known as the "intention–behavior gap" or "attitude–behavior gap[2,3]. That is, people's goals of making sustainable choices are not always translated into sustainable behaviors, as they are unlikely to give up the financial benefits of environmentally unfriendly choices[4]. Although research on why people choose—or fail to choose—to engage in environmentally friendly behavior is not new[5], understanding motivations for engaging in sustainability-relevant behaviors remains critical, as significant and immediate behavioral changes are necessary for achieving global sustainability targets[6]. Thus, understanding the psychological underpinnings of behaviors and behavioral changes is crucial for research as well as practice[6].

The underlying determinants of pro-environmental behavior are debated. Some researchers argue for the role of intent-based, motivation-related perspectives, whereas others emphasize impact-oriented, outcome-based perspectives[7]. However, motivations and means can clash. In particular, personal moral norms are critical in driving prosocial and pro-environmental behavior[8,9], as many people believe it is their moral obligation to care for nature[10]. Yet, moral behavior in the domain of acting sustainably can be expensive, forcing choices between costly moral behaviors or acting in financial self-interest[11]. Further work examining how people respond to moral–pragmatic tradeoffs is therefore needed[11].

Pro-environmental actions are typically characterized as prosocial, altruistic, and moral, with the potential to deliver long-term, sustainable benefits to the environment and the public. In contrast, anti-environmental actions usually indicate behaving in accordance with personal interests[12]. Practically, this means that self-interested people are unlikely to engage in sustainable, pro-environmental ways if it increases costs or decreases convenience[10,11]. Therefore, pro-environmental behavior likely necessitates overcoming immediate self-interest to serve longer-range goals that will benefit the planet. Pro-environmental behaviors vary considerably in their personal costs, and research consistently shows that people are more willing to engage in low-cost actions (e.g., recycling or reducing energy use) than in high-cost actions that require significant financial sacrifice or lifestyle change[8,13]. The present research focuses specifically on the latter: financially costly tradeoff decisions in which the environmentally protective option requires a meaningful personal financial sacrifice. This distinction is important because the psychological mechanisms underlying costly and low-cost pro-environmental actions may differ, and our findings should

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therefore be interpreted in the context of financially consequential environmental choices rather than pro-environmental behavior more broadly.

Greed is a particularly unethical and corrupt form of self-interest[14,15], as it pursues self-interest at the expense of others[15,16]. Indeed, although greed and self-interest can generate similar behaviors, greedy individuals have higher dispositional tendencies to behave in their own self-interests and to strive for "more" even when they already have enough[17]. This propensity can lead to negative outcomes for others. For example, greedy people might stockpile goods, preventing others from procuring the same products, or engage in other unethical or environmentally harmful activities[16,18]. Notably, extrinsic incentives can lead people toward greed and unethical behavior, such as failing to conserve resources and engaging in lifestyles that overconsume scarce resources like food, transportation, and shelter[19]. Thus, if strong norms for pro-environmental behavior do not exist, incentives for sustainable consumption will often not be strong enough to curb the tendencies of greedy people[20].

It is important to note, however, that greed can be conceptualized and measured in different ways. Dispositional greed, as defined by Seuntjens et al. [17] and Krekels & Pandelaere[21], refers to the desire to always want more and to never be satisfied with what one has, a stable personality trait that captures the insatiable "wanting more" aspect of greed. The present research takes a complementary but distinct approach, focusing on positive beliefs about greed: the extent to which individuals endorse the view that greed and self-interested behavior are morally acceptable and can be beneficial[22,23]. Positive beliefs about greed are theoretically relevant to environmental tradeoff decisions because they capture individuals' normative orientation toward self-interested behavior, that is, whether they believe it is acceptable to prioritize personal gain, which may be a more proximal predictor of choices that pit financial self-interest against environmental responsibility.

Clearly, there is a relationship between greed and unethical behaviors[22]. Yet, questions remain about the situations and predispositions that might lead people to deviate from their moral standards. That is, even people whose attitudes indicate positivity toward greed likely still have strong moral values, and protecting the environment might be one of those values. Moreover, people with strong moral identities, even those with favorable attitudes toward greed, might be expected to value costly sustainable actions and to feel responsible for the unsustainable outcomes of their actions[24]. Yet, when tradeoffs exist between choosing moral, pro-environmental actions and behaving in self-serving (but not sustainable) ways, people who feel that greed is acceptable might choose the less moral path, even if they value sustainability[25]. Ultimately, although moral values can motivate behavior, greed is also a motivational state[17]. This makes it important to understand the underlying mechanisms that allow those with positive views about greed to detach themselves from ethical standards and participate in immoral acts without showing much remorse.

According to Bandura, by interfering with self-regulation processes, moral disengagement is one way people can violate moral standards[26], allowing them to harm others to serve their own interests or profit[27] while retaining a positive self-image. This is also evident in environmental contexts, where moral disengagement mechanisms allow people to marginalize the environment, as well as to validate and defend unsustainable behaviors[25,28]. Indeed, the psychological complexity of determining what represents the most sustainable choice in any instance paves the way for moral disengagement mechanisms to be activated, allowing for easier rationalization of unsustainable behavior[26,28]. In turn, this facilitates people's ability to avoid making the significant changes to their ways of life that their moral self-view would otherwise dictate[26]. Additionally, individuals may experience feelings of pride when they justify their actions as morally acceptable, despite negative impacts of that behavior, whereas they may feel guilt when confronted with the realization that their choices contradict their values[27,29]. Moral disengagement and moral emotions such as pride and guilt are therefore likely to play a central role in how people think and feel about environmentally relevant tradeoff decisions.

The current research investigates the roles of positive beliefs about greed and moral disengagement in shaping decisions that pit pro-environmental but costly behavior against self-interested but unsustainable behavior[24,25]. Past work has linked moral disengagement to a range of unsustainable and environmentally harmful behaviors, and there is growing recognition that moral disengagement operates within broader motivational and emotional systems rather than as an isolated cognitive mechanism[28,30,31]. The present research builds on this foundation by examining how positive beliefs about greed and moral disengagement jointly shape decisions in explicit financial–environmental tradeoff situations, and by testing whether moral disengagement reflects a preexisting orientation or a presumably motivated post hoc response to choice. To our knowledge, prior research has rarely examined these questions within a tradeoff paradigm in which the financially beneficial option is also the environmentally harmful one. We use such tradeoff scenarios to approximate everyday decisions people frequently make (e.g., whether to buy a more expensive, sustainable product vs. a cheaper, less sustainable product) and examine how beliefs about greed and moral disengagement relate to both choices and moral emotions such as pride and guilt.

We propose that higher positive beliefs about greed and higher moral disengagement will both be associated with more selfish decisions and will impact the differences in pride and guilt associated with people's tradeoff decisions.

Based on this framework, we tested four main predictions. First, higher positive beliefs about greed should be associated with a greater likelihood of choosing the self-interested but environmentally unsustainable option (Studies 1, 2 and 3). Second, higher moral disengagement should likewise be associated with a greater likelihood of choosing the self-interested option (Studies 2 and 4). Third, the relationship between environmentally sustainable and unsustainable choices and the post-choice moral emotions of pride and guilt should be moderated by moral disengagement (Studies 2 and 4). Fourth, if moral disengagement functions primarily as an antecedent rather than a post hoc justification, it should be evident prior to choice and remain relatively stable across time rather than emerging only after an unsustainable decision has been made (Studies 4).

To test these hypotheses, participants engaged in a hypothetical choice paradigm which featured a modified version of a vignette used in past research[32–35]. Participants were asked to imagine they had invested a substantial portion of their savings in a company that was now facing financial problems, and where the company's profit-boosting action would harm the environment. Participants were offered a choice: sell their shares and lose their investment and future profits, or keep their shares, recover their losses, and earn substantial gains.

Study 1 manipulated positive beliefs about greed to test its impact on trade-off choices and subsequent responses. Study 2 measured individual differences in positive beliefs about greed before presenting the vignette, then asked participants additional questions about pride, guilt, and moral disengagement. To test whether participants' decisions were normative, Study 3 manipulated whether participants made hypothetical choices for themselves or a hypothetical other. Study 4 examined whether moral disengagement protectively *justified* participants' choices or whether people made unsustainable choices because they were *already* morally disengaged.

The current research offers several contributions to the literature on pro-environmental behavior and moral disengagement. First, we show that increasing beliefs about the utility of greed causes people to behave unsustainably, and that higher positive trait-level beliefs about greed are also associated with more unsustainable choices. Second, we document that trade-off decisions impact moral emotions like pride and guilt. Lastly, we highlight how preexisting moral disengagement may actually *underlie* decision-making and subsequent emotional responding rather than arising as a strategy allowing people to behave unsustainably and maintain a positive moral self-image.

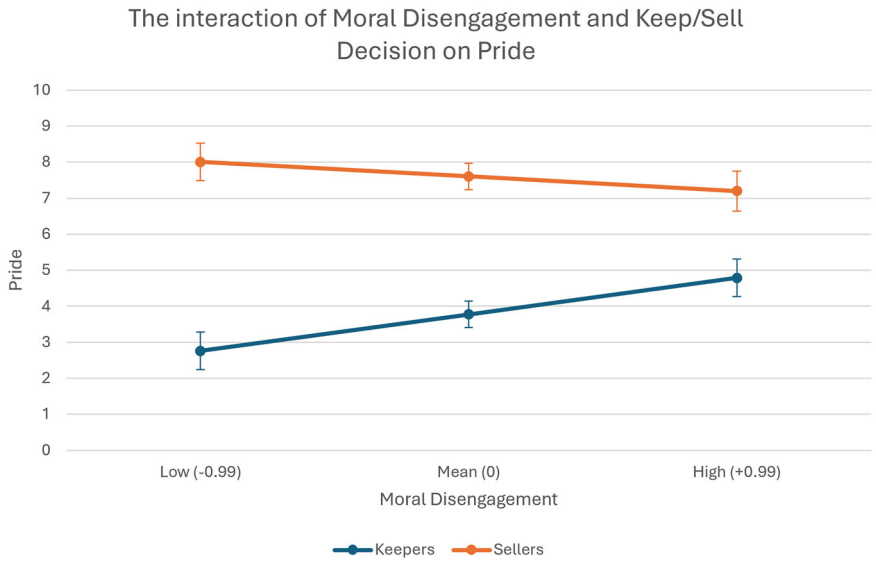


**Fig. 1 | The interaction of moral disengagement and keep/sell decision on pride.** *Note*. The difference in pride between sellers and keepers was largest at low moral disengagement ($p < 0.001$), smaller at mean moral disengagement ($p < 0.001$), and smallest at high moral disengagement ($p < 0.001$). Predicted pride values are plotted at low (−1 SD), mean, and high (+1 SD) levels of moral disengagement. Error bars represent standard errors of the predicted values. Mean differences based on tradeoff choice were significant at low ($p < 0.001$), mean ($p < 0.001$), and high ($p < 0.001$) levels of moral disengagement. ($N_{Total} = 215$, $n_{Keeper} = 124$, $n_{Seller} = 91$). Simple slopes were estimated using ordinary least squares regression (PROCESS Model 1; Hayes, 2018). All tests were two-sided. No adjustments were made for multiple comparisons.

## Results

### Study 1 - priming greed in an online hypothetical choice experiment

Participants ($N = 210$) were randomly assigned to think of ways greed can be useful (greed condition; $n = 99$) or what they do during an average day (control; $n = 111$), then completed a self-report measure of positive beliefs about greed and choose a selfish or selfless option in an environmental trade-off scenario[23]. Beyond demographics reported in the method, additional measures were collected in each reported study, but were not central to the current research and are not discussed further.

Positive belief about greed scores were higher in the greed condition ($M = 4.63$, SD = 1.14) than in the control condition ($M = 3.97$, SD = 1.28), $t(208) = 3.91$, $p < 0.001$, $d = 0.54$. In addition, logistic regression showed that participants in the greed (vs. control) condition were more likely to keep shares, $b = -0.97$, SE = 0.33, $z = -2.95$, $p = 0.003$, McFadden's pseudo $R^2 = 0.07$. Participants who kept their shares also reported significantly higher positive beliefs about greed ($M = 4.49$, SD = 1.24) than sellers ($M = 3.89$, SD = 1.20), $t(208) = 3.36$, $p = 0.001$, $d = 0.49$.

Next, we used PROCESS Model 4 (Hayes, 2018) to estimate a simple mediation model in which experimental condition (greed vs control) predicts tradeoff choice (keep vs sell) indirectly through self-reported positive beliefs about greed. The greed condition predicted higher positive beliefs about greed ($b = -0.66$, $SE = 0.17$, $p < 0.0001$), which in turn predicted a greater likelihood of keeping (vs selling) shares ($b = -0.52$, SE = 0.14, $p < 0.0001$). The indirect effect was significant (effect = 0.35, 95% CI [0.12, 0.65]), indicating that approximately 26% of the total effect of the greed manipulation on tradeoff choice was mediated by positive beliefs about greed (PM = 0.26; Hayes, 2018). A direct effect of condition on decisions remained ($b = -0.97$, $SE = 0.33$, $p = 0.003$).

Study 1 suggests that emphasizing the utility of greed increases self-reported positive beliefs about greed, shifting preferences toward self-serving, unsustainable decisions. However, Study 1 did not investigate the role of moral disengagement in this process or assess pride or guilt. Study 2 incorporated these psychological variables.

### Study 2- positive beliefs about greed and moral disengagement in a hypothetical choice scenario

Study 2 examined whether individual differences in positive beliefs about greed predict tradeoff decisions, how moral disengagement, pride, and guilt relate to participants' tradeoff decisions, and whether moral disengagement moderates emotional responses to tradeoff decisions. Participants ($N = 215$) completed a positive beliefs about greed scale before making a tradeoff decision, then reported their feelings of pride and guilt about the decision, and completed a measure of moral disengagement.

Sellers reported less positive beliefs about greed ($M = 3.26$, SD = 1.08), felt more pride ($M = 7.68$, SD = 2.32), and had lower moral disengagement (MD) ($M = 1.99$, SD = 0.87) than keepers ($M_{Greed} = 4.14$, SD = 1.15; $M_{Pride} = 3.91$, $SD = 3.05$; $M_{MD} = 2.31$, $SD = 1.05$), respectively, $ts(213) =$ 5.62, 9.85, and 2.33, $ps < 0.0001$, $< 0.0001$, and 0.021, $ds = 0.79$, 1.39, and 0.33. Keep/sell decisions were not significantly associated with guilt, $p = 0.892$. MD was not significantly associated with pride ($p = 0.302$) or guilt ($p = 0.195$), but it was significantly associated with beliefs about greed ($r = 0.38$, $p < 0.0001$).

We then tested whether MD moderated the effect of keep/sell decision on pride and guilt using PROCESS Model 1[36], which estimates a simple moderation model in which the effect of tradeoff decision (keep vs sell) on pride and guilt varies as a function of moral disengagement.

For guilt, tradeoff decision and moral disengagement did not significantly interact, $b = 0.87$, SE = 0.49, $t(211) = 1.80$, $p = 0.073$, $R^2$ change = 0.015, 95% CI [−0.08, 1.83]. However, this interaction was significant for pride (see Fig. 1), b = −1.44, SE = 0.39, $t(211) = -3.65$, $p = 0.0003$, $R^2$ change = 0.039, 95% CI [−2.21, −0.66]. Sellers reported more pride than keepers across all levels of MD (low MD: $b = 5.25$, SE = 0.52, $t(211) = 10.19$, $p < 0.001$, 95% CI [4.23, 6.27]; average MD: $b = 3.83$, SE = 0.37, $t(211) = 10.31$, $p < 0.001$, 95% CI [3.10, 4.56]; high MD: $b = 2.41$, SE = 0.56, $t(211) = 4.31$, $p < 0.001$, 95% CI [1.31, 3.51]), but this difference diminished as MD increased.

In Study 2, people who kept their shares had more positive beliefs about greed and felt less guilty about their decisions. Importantly, this study shows that moral disengagement may help people justify unsustainable choices, also moderating their post-decision emotional response to them.

### Study 3 - moral perceptions of self vs others in a hypothetical trade-off scenario

Studies 1 and 2 assume a preexisting belief that the presented tradeoff decisions represent moral choices. However, if the assumption is false, questions about moral disengagement may be irrelevant. Study 3 therefore tested whether participants believe the tradeoff decision is a moral one. Moreover, because decision-making frequently differs for self and others[37], we additionally examined participants' beliefs about how *others* should behave.

After completing a measure of positive beliefs about greed, participants ($N = 214$) were randomly assigned to indicate the extent to which they or a "typical/average" person would see the presented tradeoff choice as a moral

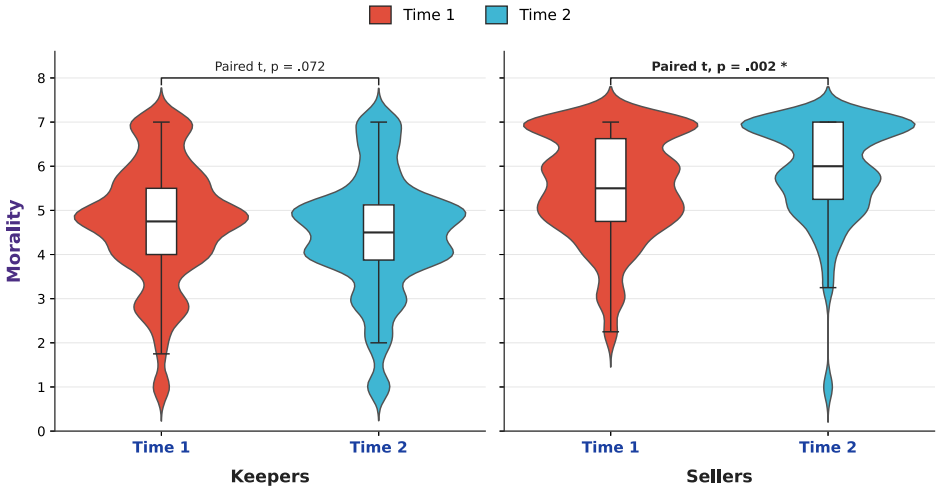


**Fig. 2 | The interaction of time (phase 1 and 2) and keep/sell decision on perceived morality of a tradeoff decision.** *Note*. Due to KDE smoothing, violin shapes may extend slightly beyond the 1–7 scale, although all observed morality ratings fell within this range. ($N_{Total}$ = 178, $n_{Keeper}$ = 123, $n_{Seller}$ = 55).

decision. Participants then made this choice for themselves (as in Studies 1 and 2), or indicated what decision the other person *should* make, before responding to questions about pride and guilt.

In the self-condition, 61 people kept the shares and 52 sold them; in the other-condition, 45 people indicated that the person should keep the shares and 56 people indicated that they should sell. A chi-square association test found no evidence for an association between tradeoff decisions and condition, suggesting similarity in the choices people make for self and other, $p = 0.168$. Also, the extent to which participants in the self ($M = 5.00$, SD = 1.90) versus other ($M = 4.89$, SD = 1.91) condition perceived the keep/sell decision as a moral issue did not differ, $p = 0.678$. Across both conditions, a one-sample $t$ test against the scale midpoint (4.00) was significant, suggesting that participants believed the decision was a moral one ($M = 4.95$, SD = 1.91), $t(213) = 7.28$, $p < 0.0001$, $d = 0.50$.

Next, we conducted 2 (Self vs Other) × 2 (Keeper vs Seller) between-subjects ANOVAs on positive beliefs about greed, pride, and guilt. Main effects of decision emerged for each variable. Sellers reported lower positive beliefs about greed ($M = 3.42$, SD = 1.07), higher pride ($M = 6.73$, SD = 2.44), and lower guilt ($M = 2.77$, SD = 2.32) than keepers ($M_{Greed} = 4.00$, SD = 1.14; $M_{Pride} = 5.03$, SD = 2.46; $M_{Guilt} = 4.13$, SD = 2.46), respectively, $F$s (1, 210) = 13.37, 24.97, and 17.37, $p$s < 0.0001, < 0.0001 and < 0.0001; $d$s = 0.53, 0.69, and 0.56. Main effects of self vs other were not significant for greed, pride, and guilt, with $p = 0.310$, $p = 0.552$ and $p = 0.216$. The interaction was not significant for positive beliefs about greed, $p = 0.129$. For pride, the interaction was significant ($F(1, 210) = 6.14$, $p = 0.014$, $\eta_p^2 = 0.028$), indicating that keeper versus seller pride differences were larger for self than for other. The interaction was also significant for guilt ($F(1, 210) = 8.26$, $p = 0.004$, $\eta_p^2 = 0.038$), exhibiting a similar pattern.

These results replicated the finding from Study 2 of higher positive beliefs about greed and lower pride for keepers (vs sellers), also showing that keepers had higher guilt. Most importantly, Study 3 suggests that people similarly perceive the keep/sell decision as a moral issue for themselves and others, suggesting that moral disengagement might be a cognitive mechanism that helps people maintain a positive self-image when making immoral decisions. Alternatively, moral disengagement might facilitate the making of selfish (vs. moral) decisions.

### Study 4 - testing the temporal role of moral disengagement in self-serving environmental choices

Initially, we believed that people who decide to keep their shares would morally disengage when confronted with the choice, allowing them to downplay the immorality of the company's action. However, alternatively, moral disengagement might *facilitate* selfish choices. That is, people who choose selfishly (vs morally) may do so because they are *already* morally disengaged.

To address this possibility, at Time 1, participants completed a measure of moral disengagement (MD) and a four-item measure assessing the perceived moral importance of environmental tradeoff decisions (M-ERT). This M-ERT scale asked participants to indicate the extent to which they consider the morality of their choices when everyday decisions involve balancing potential tradeoffs between, for example, personal convenience, doing something they want to do, seeking pleasurable activities, or avoiding discomfort and potentially causing environmental harm (1 = not at all, 7 = very much so). Fifteen days later (Time 2), participants completed the same tradeoff task from Studies 1–3 and again responded to the moral disengagement and M-ERT items. This allowed us to test whether individuals who make self-serving decisions (i.e., keep their shares) exhibit greater MD *after* making those decisions, potentially demonstrating *motivated* disengagement, or whether the same decisions are a result of people already being morally disengaged.

A total of 178 participants completed both phases of the study. Repeated-measures ANOVAs tested for changes in MD and M-ERT as a function of decision type (keeper vs seller).

Time did not influence MD ($p = 0.392$), and the time × decision (keep/sell) interaction was not significant ($p = 0.182$), indicating that MD did not change significantly from pre- to post-decision, regardless of whether participants kept or sold their shares. Thus, individuals who kept their shares may already have been morally disengaged. Importantly, as in Study 2, keepers ($M = 2.15$, SD = 0.89) reported higher MD than sellers ($M = 1.76$, SD = 0.69), $F(1,176) = 8.35$, $p = 0.004$, $\eta_p^2 = 0.045$.

The main effect of time on M-ERT was also not significant, $p = 0.689$. However, as with MD, sellers perceived the tradeoff decision as more moral than keepers, $F(1,176) = 39.48$, $p < 0.001$, $\eta_p^2 = 0.18$. Interpretation of this main effect was qualified by a significant time × decision interaction (see Fig. 2), $F(1,176) = 7.28$, $p = 0.008$, $\eta_p^2 = 0.04$. For keepers, M-ERT did not significantly decline from Time 1 ($M = 4.72$, SD = 1.35) to Time 2 ($M = 4.46$, SD = 1.34), $p = 0.072$. In contrast, for sellers, it increased from Time 1 ($M = 5.54$, SD = 1.19) to Time 2 ($M = 5.89$, SD = 1.19), $t(54) = -3.24$, $p = 0.002$, $d = 0.29$.

Among keepers, correlations of MD and M-ERT were nonsignificant at Time 1 ($r = 0.021$, $p = 0.820$) and Time 2 ($r = -0.12$, $p = 0.181$). Among sellers, the correlation was not significant at Time 1 ($r = -0.24$, $p = 0.080$) but was significant at Time 2 ($r = -0.30$, $p = 0.024$), suggesting that for sellers—but not keepers—lower moral disengagement was associated with enhanced moral concern about a tradeoff decision after the choice was made.

As in Study 2, we examined the effects of decision on pride and guilt. Sellers reported higher pride ($M = 8.45$, SD = 2.31) and lower guilt ($M = 2.97$, SD = 2.10) than keepers (pride $M = 5.48$, SD = 2.82; guilt $M = 5.88$, SD = 2.79), respectively, $t$s(176) = – 6.86 and 6.92, $p$s < 0.0001 and < 0.0001, $d$s = 1.15 and 1.18.

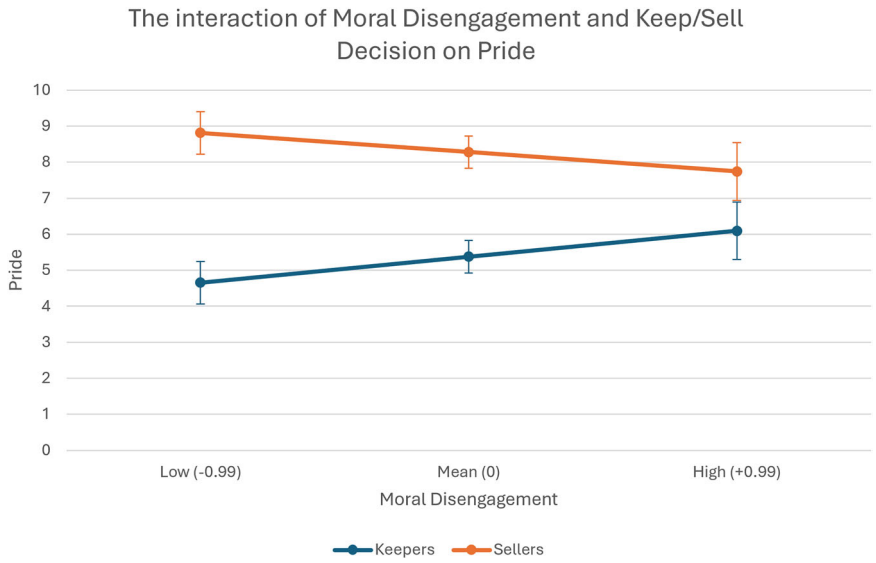


**Fig. 3 | The interaction of moral disengagement and keep/sell decision on pride.** *Note*. Mean differences based on tradeoff choice were significant at low ($p < 0.001$), mean ($p < 0.001$), and high ($p = 0.041$) levels of moral disengagement. Predicted pride values are plotted at low (−1 SD), mean, and high (+1 SD) levels of moral disengagement at Time 2. Error bars represent standard errors of the conditional effects. Mean differences based on tradeoff choice were significant at low ($p < 0.001$), mean ($p < 0.001$), and high ($p = 0.041$) levels of moral disengagement. ($N_{Total} = 178$, $n_{Keeper} = 123$, $n_{Seller} = 55$). Simple slopes were estimated using ordinary least squares regression (PROCESS Model 1; Hayes, 2018). All tests were two-sided. No adjustments were made for multiple comparisons.

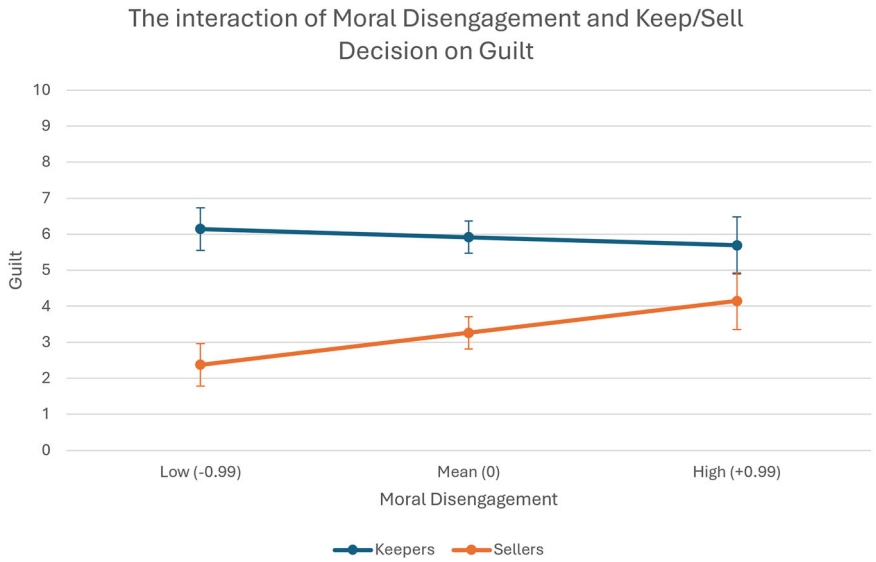


**Fig. 4 | The interaction of moral disengagement and keep/sell decision on guilt.** *Note*. Mean differences based on tradeoff choice were significant at low ($p < 0.001$) and mean ($p < 0.001$) levels of moral disengagement, but not at high levels ($p = 0.053$). Predicted guilt values are plotted at low (−1 SD), mean, and high (+1 SD) levels of moral disengagement at Time 2. Error bars represent standard errors of the conditional effects. ($N_{Total} = 178$, $n_{Keeper} = 123$, $n_{Seller} = 55$). Simple slopes were estimated using ordinary least squares regression (PROCESS Model 1; Hayes, 2018). All tests were two-sided. No adjustments were made for multiple comparisons.

Because Study 4 included post-decision assessments of both moral disengagement and the perceived morality of environmental tradeoffs, and because earlier studies indicated that keep/sell decisions were associated with pride and guilt, we conducted exploratory analyses to examine whether these Time 2 variables moderated the emotional consequences of participants' choices. These analyses were exploratory because they extended beyond our primary temporal question of whether moral disengagement reflects a preexisting orientation or a motivated response to choice. Thus, we examined whether moral disengagement (MD) or the perceived morality of environmental tradeoffs (M-ERT) at Time 2 moderated the relationship between tradeoff decisions and pride/guilt.

A significant interaction between MD and tradeoff decision on pride emerged, $b = -1.31$, SE = 0.56, $p = 0.021$. Replicating Study 2, differences in pride for keepers and sellers were significant across all levels of MD, but decreased in extent as MD increased (see Fig. 3). Unlike Study 2, MD and tradeoff decision also interacted to predict guilt (Fig. 4), $b = 1.16$, $SE = 0.56$, $p = 0.039$. Sellers experienced substantially less guilt than keepers at low levels of MD, but this difference decreased as MD increased, with the difference being nonsignificant ($p = 0.053$) when MD was high. Speculatively, as MD increased, some sellers may have felt guilt about making a choice that favored the environment rather than themselves.

For pride, tradeoff and M-ERT also interacted, $b = 0.79$, SE = 0.35, $p = 0.026$. When M-ERT was low, pride was similar for keepers and sellers ($p = 0.105$), but as it increased, the difference in pride for keepers and sellers also increased (see Fig. 5). The interaction also emerged for guilt, $b = -0.68$, SE = 0.34, $p = 0.046$. Across all levels of M-ERT, sellers indicated significantly less guilt than keepers, but the magnitude of this difference increased as M-ERT increased (Fig. 6).

Importantly, moral disengagement did not change from an initial measurement to one 15 days later, after participants chose whether to keep or sell their shares. Typically, moral disengagement is conceptualized as a motivated response to engaging in immoral behavior, allowing someone to maintain a positive moral self-image despite behaving badly.

We also examined self-reported pro-environmental behavior (PEB) at both timepoints. Sellers reported higher general PEB than keepers at both Time 1 ($M = 4.02$, SD = 0.84 vs $M = 3.66$, SD = 1.02) and Time 2 ($M = 4.24$, SD = 0.82 vs $M = 3.68$, $SD = 1.01$). A repeated measures ANOVA revealed a significant main effect of time ($F(1, 176) = 5.64$, $p = 0.019$, $\eta^2 = 0.031$) and a significant time × decision interaction ($F(1, 176) = 4.03$, $p = 0.046$,

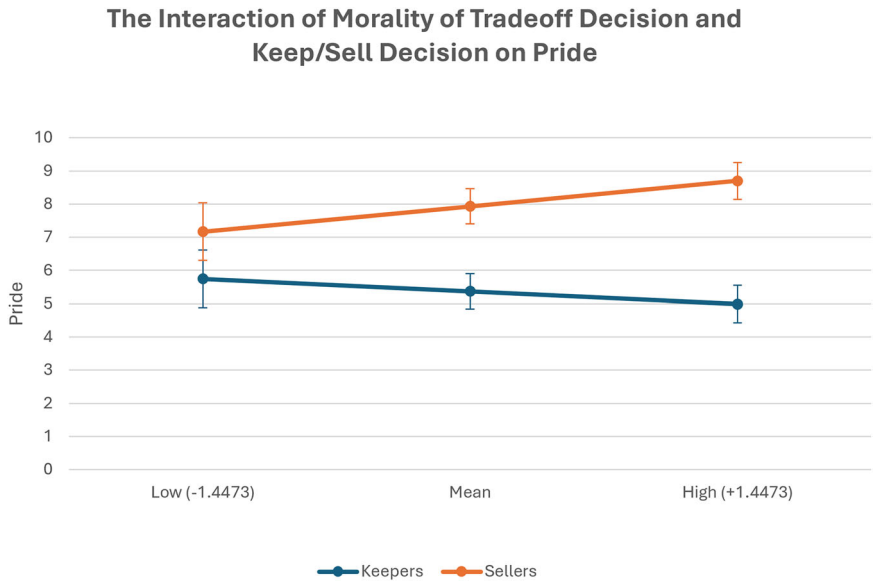


**Fig. 5 | The interaction of morality of tradeoff decision and keep/sell decision on pride.** *Note.* Mean differences based on tradeoff choice were nonsignificant at low morality ($p = 0.105$), but were significant at mean and high morality, $ps < 0.001$. Predicted pride values are plotted at low (−1 SD), mean, and high (+1 SD) levels of perceived morality of environmental tradeoff decisions at Time 2. Error bars represent standard errors of the conditional effects. ($N_{Total} = 178$, $n_{Keeper} = 123$, $n_{Seller} = 55$). Simple slopes were estimated using ordinary least squares regression (PROCESS Model 1; Hayes, 2018). All tests were two-sided. No adjustments were made for multiple comparisons.

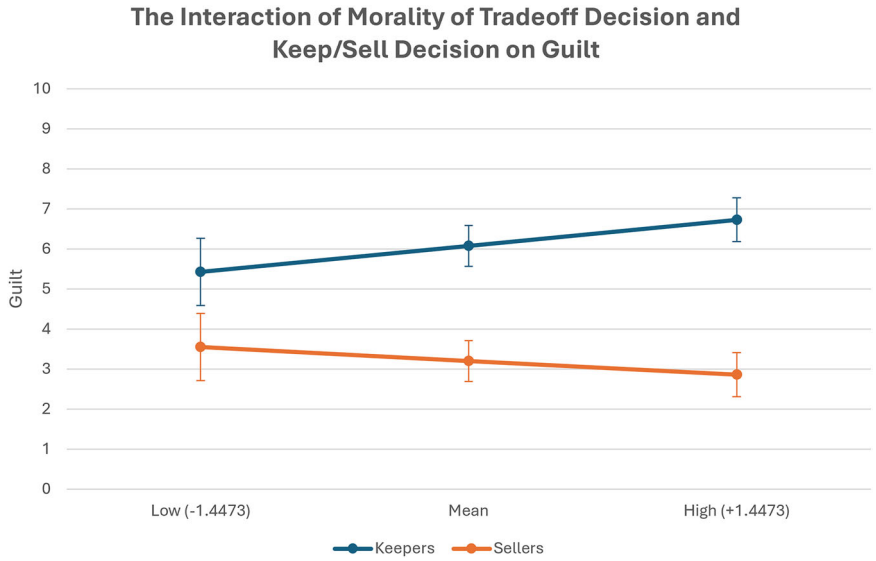


**Fig. 6 | The interaction of morality of tradeoff decision and keep/sell decision on guilt.** *Note.* Mean differences based on tradeoff choice were significant when perceived morality of the choice was low ($p = 0.026$), at the mean ($p < 0.001$), or high, $p < 0.001$. ($N_{Total} = 178$, $n_{Keeper} = 123$, $n_{Seller} = 55$). Simple slopes were estimated using ordinary least squares regression (PROCESS Model 1; Hayes, 2018). All tests were two-sided. No adjustments were made for multiple comparisons.

$\eta^2 = 0.022$), indicating that sellers' general PEB increased following their environmentally protective choice, whereas keepers' PEB remained essentially stable. A logistic regression further showed that baseline PEB (Time 1) significantly predicted tradeoff choice ($b = 0.39$, $SE = 0.17$, $Wald = 5.02$, $p = 0.025$, $Exp(B) = 1.48$, Nagelkerke $R^2 = 0.04$), such that participants with higher general pro-environmental behavior at Time 1 were more likely to make the environmentally protective choice. However, the modest model fit suggests that general PEB tendencies account for only a small proportion of variance in financially costly tradeoff decisions, consistent with the interpretation that greed and moral disengagement contribute meaningfully to such decisions beyond what general environmental attitudes alone would predict.

The current data suggest that environmental moral disengagement is more of a preexisting orientation that facilitates making selfish decisions without feeling guilty. In fact, consistent with Study 2, greater moral disengagement appears to be associated with greater pride in selfish decisions. However, the current data also suggests a role for motivated moral reasoning, as, regardless of decision, the perceived morality of the tradeoff choice increased for people who behaved morally by *selling* their shares. Moreover, the higher pride and lower guilt of sellers versus keepers following their choice is contextualized by perception of the morality of the choice: Making the choice is associated with higher perceived morality of the choice for sellers only, and this is associated with a greater difference in pride and guilt for sellers relative to keepers.

## Discussion

The current research investigates how positive beliefs about greed and moral disengagement impact decision-making about environmental tradeoffs pitting selfish (but unsustainable) choices against sustainable, costly choices. As expected, higher manipulated beliefs about the utility of greed and measured positive beliefs about greed were associated with self-interested choices. More importantly, moral disengagement appears to be more of a driver of selfish behavior than a protective, in-the-moment motivated reaction allowing people to maintain their moral self-image while behaving immorally.

Importantly, the present findings speak specifically to the role of positive beliefs about greed rather than dispositional greed as defined by Seuntjens et al. [17] and Krekels and Pandelaere[21]. Future research should examine whether similar effects emerge using validated dispositional greed scales, which would allow for a more direct test of whether the desire to

always want more, rather than normative endorsement of self-interested behavior, predicts environmentally unsustainable choices in tradeoff situations.

Study 1 provided experimental evidence that inducing a pro-greed mindset increased the likelihood of self-interested, environmentally unsustainable choice relative to a control condition. Across Studies 2–4, positive beliefs about greed and moral disengagement were associated with greater likelihood of choosing the self-interested option, and moral disengagement moderated the emotional consequences of those choices. Because Studies 2–4 relied on correlational designs, these findings should be interpreted as consistent with the proposed theoretical framework rather than as direct evidence of causal relationships. Future research should experimentally manipulate moral disengagement to provide stronger causal evidence for its role in financially costly environmental tradeoff decisions.

The present findings build on prior work suggesting that moral disengagement can facilitate environmentally harmful or unsustainable conduct by weakening the self-sanctions that might otherwise constrain such behavior[30,31]. Relatedly, prior research has linked moral disengagement to non-green buying and to sustainable consumption contexts in which desirable but socioecologically harmful options may be easier to justify[28,38]. The current findings extend this literature by examining explicit financial-environmental tradeoff decisions and by suggesting that, in this context, moral disengagement may function less as a purely motivated post hoc rationalization and more as a preexisting orientation associated with self-interested, environmentally unsustainable choice.

The present findings are consistent with moral disengagement functioning as a preexisting orientation rather than a post hoc response to environmentally unsustainable choice. A repeated measures ANOVA showed that the main effect of time on moral disengagement was not significant ($F(1, 176) = 0.74$, $p = 0.392$, $\eta^2 = 0.004$), and the time × decision interaction was also not significant ($F(1, 176) = 1.80$, $p = 0.182$, $\eta^2 = 0.010$), indicating that moral disengagement levels were stable from pre- to post-decision regardless of choice. Keepers consistently reported higher moral disengagement than sellers at both time points, further supporting the interpretation that moral disengagement facilitates self-interested choice rather than emerging as a consequence of it. However, we acknowledge that this interpretation does not preclude more dynamic and reciprocal processes between moral disengagement and moral emotions. Recent work suggests that moral disengagement operates in part through the suppression of guilt, shame, and anxiety, which may in turn shape subsequent behavior[39,40]. Our two-wave design captures temporal stability across a 15-day interval but was not designed to examine fine-grained within-person emotional dynamics across repeated decisions. Future research using experience-sampling or daily-diary methods would be better suited to examine whether guilt and anxiety feed back into moral disengagement over shorter time scales and across repeated environmentally relevant behavioral episodes.

Contrary to expectations, positive beliefs about greed did not directly predict emotional responses in this study. However, consistent with expectations, sellers reported greater pride than keepers. This difference was moderated by moral disengagement, and the difference got smaller as moral disengagement increased. Similarly, sellers felt less guilt than keepers, particularly when disengagement was low. As disengagement increased, this difference diminished. These patterns suggest that moral decision-making prompts emotional reactions that depend not only on the choices made but on the extent to which people are disengaged from moral concerns when making choices.

Across studies, we consistently found that moral *engagement*—reflected in lower moral disengagement and stronger beliefs that decisions about environmental tradeoffs implicate morality—is associated with a greater likelihood of divesting from companies engaged in unsustainable practices. This suggests that sustainability-related choices may be shaped not only by economic considerations, but also by how individuals situate these decisions within a moral framework. Notably, while baseline pro-environmental behavioral tendencies predicted tradeoff choice in Study 4, the effect was modest (Nagelkerke $R^2 = 0.04$), suggesting that positive beliefs about greed and moral disengagement contribute meaningfully to financially costly environmental decisions beyond what general environmental attitudes alone would predict.

From a policy perspective, interventions that activate or highlight moral considerations may support more sustainable financial behavior. For example, making the environmental consequences of corporate practices more transparent could help ensure that investment decisions are evaluated not only as economic tradeoffs but also as moral ones. For those consumers who are less morally disengaged from environmental concerns, messages about pride and guilt may also encourage high-cost pro-environmental choices such as divesting from companies whose practices cause environmental harm. Because guilt can motivate reparative and prosocial behavior[41], efforts that reduce moral disengagement, such as educational messaging that clarifies the moral implications of financial decisions, may help ensure that individuals remain attentive to the environmental impacts of their actions.

These findings point to a broader conclusion: sustainable investment policies may be more effective when they support moral engagement and highlight the moral meaning of financial choices. Framing environmentally responsible investment and divestment as aligned with personal moral values related to the environment may be one pathway for encouraging more sustainable financial behavior[42,43].

The present findings are most directly relevant to financially costly environmental tradeoff decisions and may not generalize to lower-cost or habitual forms of pro-environmental behavior. The literature consistently distinguishes between high-cost and low-cost pro-environmental actions[8,13], and future research should examine whether the roles of both dispositional and positive beliefs about greed, and moral disengagement differ across these behavioral domains.

Although Study 4 included a baseline measure of self-reported pro-environmental behavior at both Time 1 and Time 2, Studies 1–3 did not include a comparable measure. It therefore remains unclear whether the effects observed in those studies reflect stable general pro-environmental behavioral tendencies or responses specific to financially costly tradeoff decisions. Future research should include established PEB measures across all studies to better disentangle these possibilities.

One limitation of the current research is that all four studies relied on the same core environmental tradeoff scenario. Although this consistency helped isolate the roles of positive beliefs about greed, moral disengagement, and moral emotions within a common decision framework, it also limits the generalizability of the findings. The present results were obtained in the context of a hypothetical financially consequential investment decision involving environmental harm, and it is not yet clear whether the same pattern would emerge in other environmentally relevant contexts, including more routine consumer, household, or lifestyle decisions. Future research should examine whether these effects replicate across a broader range of environmental tradeoff situations that vary in personal cost, familiarity, and behavioral realism.

The present studies relied on sample sizes of approximately 200 participants per study, which may have been better suited to detecting main effects than smaller interaction and mediation effects. The effect sizes for the interaction effects involving moral disengagement were modest ($\eta^2$ ranging from 0.022 to 0.045), and future research with larger samples and formal a priori power analyses would strengthen confidence in these findings. Additionally, the studies were not pre-registered, which limits the ability to distinguish confirmatory from exploratory findings. Future research should adopt pre-registration to strengthen the transparency and replicability of findings in this area.

A related limitation concerns the ecological validity of the paradigm. All four studies relied on a single hypothetical vignette presenting a forced binary choice between keeping or selling shares in an environmentally harmful company. Although this design provided experimental control and allowed for consistent comparisons across studies, it may not fully capture the complexity of real-world environmental decision-making, which is

**Table 1 | Demographics summary for studies 1–4**

| Characteristic | Study 1 (*N* = 210) | Study 2 (*N* = 215) | Study 3 (*N* = 214) | Study 4 (*N* = 178) |
|---|---|---|---|---|
| **Age (*M*/SD)** | 37.35/14.16 | 42.27/12.55 | 40.36/15.57 | 43.66/15.57 |
| **Gender** | 48.6% Female<br>48.6% Male<br>2.4% Gender diverse<br>0.5% Not disclosed | 50.7% Female<br>48.4% Male<br>0.9% Not disclosed | 48.6% Female<br>48.1% Male<br>2.3% Gender diverse<br>0.9% Not disclosed | 51.7% Female<br>46.6% Male<br>1.1% Non-binary<br>0.6% Transgender |
| **Education** | 38.1% High school or below<br>45.7% Bachelor's degree<br>16.2% Master's or above | 34.4% High school or below<br>47.9% Bachelor's degree<br>17.7% Master's or above | 42.1% High school or below<br>41.6% Bachelor's degree<br>16.4% Master's or above | 36.5% High school or below<br>44.4% Bachelor's degree<br>19.1% Master's or above |
| **Political Orientation** | Not measured | 13.9% Extremely liberal<br>22.2% Liberal<br>13.0% Liberal-leaning<br>24.5% Neither<br>11.6% Conservative-leaning<br>12.0% Conservative<br>2.8% Extremely conservative | 12.1% Extremely liberal<br>30.4% Liberal<br>14.0% Liberal-leaning<br>22.4% Neither<br>9.8% Conservative-leaning<br>7.0% Conservative<br>4.2% Extremely conservative | 16.3% Extremely liberal<br>23.6% Liberal<br>13.5% Liberal-leaning<br>19.1% Neither<br>7.9% Conservative-leaning<br>12.9% Conservative<br>6.7% Extremely conservative |

typically more varied, repeated, and embedded in broader social and situational contexts. Future research should examine whether the effects of positive beliefs about greed and moral disengagement on environmentally relevant choices replicate using real behavioral measures, field-based paradigms, or experience-sampling designs that track repeated decisions over time.

## Methods

### Sample size determination

Target sample sizes exceeded conventional recommendations for experimental research when formal power estimates are unavailable[44]. At the same time, sample-size decisions are ideally guided by the inferential goals of the study and, where possible, justified through prospective power analysis rather than fixed rules of thumb[45]. Because formal a priori power analyses were not conducted for the present studies, sample sizes were determined before data collection based on practical considerations, participant availability, budget constraints, and the goal of recruiting samples that were sufficiently large for the planned analyses.

### Exclusions

Participants who failed attention-check questions were excluded from analysis. In Study 1, 5 participants were excluded on this basis; in Study 2, 2 were excluded; and in Study 3, 6 were excluded. In Study 4, 215 participants completed Time 1, 27 did not complete Time 2, and 10 additional participants were excluded at Time 2 for failing attention-check questions. No other exclusions were applied.

### Pre-registration

The studies reported here were not pre-registered, though hypotheses were specified in advance of data collection.

### Software

We used IBM SPSS Statistics 25 and Process v3.5 for the analysis.

### Assumption statement for methods section

Prior to conducting the primary analyses, we examined whether the data met the assumptions of the statistical tests used. For logistic regression analyses (Studies 1–4), we verified that observations were independent, the dependent variable was binary, and there was no severe multicollinearity among predictors. For moderation analyses using PROCESS Model 1 (Studies 2 and 4), residuals were examined for normality and homoscedasticity. For the repeated measures ANOVA in Study 4, we assessed sphericity using Mauchly's test where applicable; because each within-subjects factor had only two levels, sphericity was not a concern, and multivariate test statistics were reported. For the paired comparisons of moral disengagement across time points, the assumption of normality was evaluated and found to be reasonably satisfied given the sample size ($n = 178$), consistent with the central limit theorem. No substantial violations of assumptions were detected that would compromise the interpretation of the results.

### Study 1

We advertised a survey about Individual Characteristics and Managerial Decisions on Prolific, and participants who completed the study received US $0.50. Demographic information for all studies is in Table 1. After consenting to participate, participants who lived in the United States were randomly assigned to either a utility of greed manipulation (asking participants to think of ways greed is useful) ($n = 99$) or control condition (asking participants to think about the things they do in an average day) ($n = 101$). Consistent with the positive beliefs about greed framework[22,23], the greed manipulation was designed to emphasize a self-interested, greed-favorable mindset by asking participants to think of times when greed or self-interest can be beneficial. Age, gender, and education did not differ significantly between the greed-utility and control conditions, indicating that randomization was successful. Basically, we examined whether encouraging participants' greediness would generate more "keep the shares" decisions over "sell the shares" decision[23]. Participants' positive beliefs about greed were then measured using a five-item measure[22,23]; sample items include 'In some situations, greed is good' and 'People should generally behave in self-interested ways' (full wording in the Supplementary Materials). This scale measures the extent to which individuals endorse the view that greed and self-interested behavior are morally acceptable, and is distinct from dispositional greed scales that capture the desire to always want more[17,21]. (see Table 2 for a summary of all measures, along with associated reliabilities, for all studies)[23]. Participants were then asked to imagine that they had invested substantial savings buying shares in a company. Next, they were presented with a choice to either keep their shares, recouping losses and making further profits, or to sell their shares, losing investment capital and missing future profits (137 participants chose to keep their shares and 73 chose to sell). In every study, before providing demographic information, participants responded to additional measures that are not central to the current research and are not discussed further. For Studies 1 and 3, demographic variables did not differ significantly across experimental conditions.

### Study 2

We conducted a survey about Individual Characteristics and Managerial Decisions on Prolific, excluding participants from Study 1. Participants who completed the study received $0.60. Participants were residents of the United States. Participants first answered questions about positive beliefs about greed before being asked to make the same tradeoff decision as in Study 1 (124 participants chose to keep their shares and 91 chose to sell). Participants then reported their pride and guilt about the decision they

**Table 2 | Measures and reliability across studies**

| Study | Measure | # Items | Reliability |
|---|---|---|---|
| **Study 1** | Positive Beliefs about Greed | 5 | $\alpha = 0.83$ |
| **Study 2** | Positive Beliefs about Greed (as in Study 1) | 5 | $\alpha = 0.80$ |
| | Pride | 3 | $\alpha = 0.95$ |
| | Guilt | 3 | $\alpha = 0.96$ |
| | Moral Disengagement (MD) | 8 | $\alpha = 0.85$ |
| **Study 3** | Positive Beliefs about Greed (as in Study 1 & 2) | 5 | $\alpha = 0.80$ |
| | Pride (as in Study 2) | 3 | $\alpha = 0.89$ |
| | Guilt (as in Study 2) | 3 | $\alpha = 0.92$ |
| **Study 4 (Time 1)** | Moral Disengagement (as in Study 2) | 8 | $\alpha = 0.82$ |
| | Perceived Morality of a Tradeoff Decision (M-ERT) | 4 | $\alpha = 0.93$ |
| **Study 4 (Time 2)** | Moral Disengagement (as in Time 1/Study 2) | 8 | $\alpha = 0.87$ |
| | Pride (as in Studies 2 and 3) | 3 | $\alpha = 0.95$ |
| | Guilt (as in Studies 2 and 3) | 3 | $\alpha = 0.94$ |
| | Perceived Morality of a Tradeoff Decision (as in Time 1) | 4 | $\alpha = 0.95$ |
| | Pro-Environmental Behavior (Time 1 and Time 2) | 4 | $\alpha_{T1} = 0.69$, $\alpha_{T2} = 0.68$ |

made. Pride and guilt were each assessed with three items asking participants how they would feel about their decision (e.g., how pleased/guilty they would feel). Then they completed a measure of moral disengagement with an eight-item scale (e.g., "People shouldn't be held accountable for doing questionable things when they were just doing what an authority figure told them to do"). Full wording of these measures is reported in the Supplementary Materials. Lastly, they provided demographic information.

### Study 3

We administered a survey about Individual Characteristics and Managerial Decisions on Prolific, excluding participants who had provided responses to our previous studies. Participants who completed the study received $0.67. Participants resided in the United. All participants first responded to questions assessing positive beliefs about greed (as in Study 1), then were randomly assigned to a self- or other-decision condition (113 participants were assigned to the self condition and 101 to the other condition) before considering the same scenario from earlier studies. Age, gender, education, and political orientation did not differ significantly between the self and other conditions. Prior to making decisions for the self (self-condition) or an "average" person (other-condition), participants were asked, "To what extent do you think the choice you have (this person has) to make represents a moral decision? That is, to what extent is deciding whether to keep or sell the shares a moral decision for you (them)?" Participants then indicated whether they would keep or sell their shares (self-condition) or made the same decision on the basis of what "typical" or "average" person should do (other-condition) (across these conditions, 106 participants chose to keep and 108 chose to sell). Next, participants responded to questions assessing pride and guilt (as in Study 2) related to their decisions and responded to demographic questions.

### Study 4

We recruited participants for a two-phase study about Individual Characteristics and Managerial Decisions on Prolific, excluding participants who had completed Studies 1, 2, or 3. Participants were told that they would have to complete the second part of the study after fifteen days.

Participants received US$0.50 for completing the first part of the study and $0.90 for completing the second part of the study. All participants were United States residents. In the first part of the study, participants responded to questions assessing moral disengagement (as in Study 2) and a four-item measure assessing the perceived moral importance of environmental tradeoff decisions (M-ERT; the extent to which participants consider the morality of their choices when personal benefit is weighed against potential environmental harm). In the second part of the study (at least 15 days after the first part), participants completed the same tradeoff decision task as in earlier studies (among the 178 participants retained at Time 2, 123 chose to keep their shares and 55 chose to sell), then responded to the same questions about moral disengagement as in the first part of the study, followed by questions assessing their pride and guilt about the decision they made and demographic questions. At both Time 1 and Time 2, participants also completed a four-item measure of self-reported pro-environmental behavior assessing the frequency of everyday environmental actions (e.g., "How frequently do you recycle containers, even if this means spending some time to clean them first?"; 1 = never, 6 = always; $\alpha_{T1} = 0.69$, $\alpha_{T2} = 0.68$). This measure captured general pro-environmental behavioral tendencies independently of the tradeoff scenario.

### Ethics statement

Ethical approval was obtained from Manisa Celal Bayar University's Ethics Board dated March 16, 2026, with the decision number 2026/04. Informed consent was obtained from all individual participants involved in each study. "All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards."

## Data availability

All study materials and data associated with this research have been made publicly available and are attached to the manuscript. These files include the full survey instruments, anonymized datasets, and supplementary documentation for Studies 1–4. Because the studies were not preregistered, no preregistration documents are included. All study materials and data associated with this research have been made publicly available on the Open Science Framework (OSF). The OSF project can be accessed at the following link: https://osf.io/wkxfj/overview?view_only=b6b835db898642a0aa452e6025f98a84.

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## Author contributions

Enis Yakut: Writing–original draft, review and editing, methodology, formal analysis, validation, supervision, conceptualization. Sean M. Laurent: Writing–original draft, review and editing, methodology, formal analysis, validation, supervision, conceptualization.

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## Competing interests

The authors declare no competing interests.

## Additional information

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