

Moral investing: Psychological motivations and implications

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Abstract

In four experiments we showed that investors are not only interested in maximizing returns but have non-financial goals, too. We considered what drives the decision to invest ethically and the impact this strategy has on people's evaluation of investment performance. In Study 1, participants who chose a moral portfolio (over an immoral one) reported being less interested in maximizing their gains and more interested in being true to their moral values. These participants also reported feeling lower disappointment upon learning that a different decision could have yield a better outcome. In Studies 2 and 3, we replicated these findings when investors decided not to invest in immoral assets, rather than when they choose to invest morally. In Study 4, we found similar results using the same industrial sector in both the moral and the immoral conditions and providing participants with information about the expected return of the portfolio they were presented with. These findings lend empirical support to the conclusion that investors have both utilitarian (financial) goals and expressive (non-financial) ones and show how non-financial motivations can influence the reaction to unsatisfactory investment performance.

Keywords: ethical behavior, behavioral finance, choice, emotion.

1 Introduction

Despite doubts about the real advantage of following a socially responsible strategy (Bello, 2005; Diltz, 1995; Grossman & Sharpe, 1986; Kempf & Osthoff, 2007; Statman, 2007), more and more funds are now available that use moral criteria to screen stocks. For instance, between 1995 and 2012 in the United States, the number of socially screened funds increased from 55 to 720, while in the last two years, socially responsible investments (SRI) assets rose 78 percent, from \$569 billion to \$1,013 billion. This increase far exceeded that obtained by the broader universe of assets under professional management in the same period (US Social Investment Forum, 2012).

One of the key goals of SRI is to make money while also doing good. Consistently, a possible psychological (aka non-financial) advantage of investing morally is to help in coping with possible downturns and negative performances. In other words, being true to one's moral values and the associated positive feeling of helping the community, the environment, some minority groups, or other

valuable aims should help the investor feel lower disappointment in the face of a financial loss or a missed gain. Using hypothetical scenarios, the goal of the present paper was to demonstrate empirically the value of SRI in helping investors cope with unsatisfactory investment returns. We also explored the conditions in which this effect is more likely to happen and expected it to be driven by the fact that investors are not always motivated by the unique objective of maximizing their financial gains. We hypothesized that, if an investor is mainly motivated by a financial goal, she should find it more difficult to accept an unsatisfactory outcome compared to an investor who has picked her investments based on multiple criteria, including non-financial ones (such as being true to her moral values).

Several surveys of investors' behavior showed that individual preferences can influence choices and interfere with a strategy based on merely risk-return computations (see, Beal, Goyen, & Phillips, 2005; Lease, Lewellen, & Schlarbaum, 1976; Lewellen, Lease, & Schlarbaum, 1977; Nagy & Obenberger, 1994; Warren, Stevens, & McConkey, 1990). Investors' choices for best of sector "ethical funds"¹ seem to support the reasoning that they are willing to pay higher transaction costs for what is essen-

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¹Best of sector "ethical funds" are funds that invest on any industrial sectors but picking only the companies with the best records on the environment and human rights in each sector. In other words, a best of sector "ethical fund" can invest on oil companies but it will select only those with the best socially responsible records. It will not exclude an entire sector just because its business is judged not socially responsible. Compared to a mutual fund, best of sector "ethical funds" have higher transaction costs since they entail additional managing activities related to the selection of specific companies (the most responsible ones) within each industrial sector.

tially the same product as a regular mutual fund simply to derive a higher benefit from the fact that the fund is branded as socially responsible. Therefore, people who are willing to purchase best of sector funds fit the profile of an investor who expects to gain direct utility from investing ethically, and should be driven by both financial returns and non-wealth factors (Cullis, Lewis, & Winnett, 1992). Similarly, Williams (2007) provided evidence that a significant portion of investors from five different countries consider a company's social and environmental behavior when making investment decisions. This does not mean that these investors are extremists and do not care about the financial performance of their investments (Sparkes, 2001). A similar conclusion has been proposed by McLachlan and Gardner (2004), who found that both socially responsible as well as conventional investors give the same importance to financial return on investment. However, socially responsible investors rate twelve out of twelve ethical issues as more important for their decision compared with the ratings provided by conventional investors.

Consistent with the survey data reviewed so far, Statman (2004) suggested that investments provide individuals with two different benefits: utilitarian and expressive. On the one hand, high expected returns and low risk are the prototypical exemplars of the utilitarian benefits of investments. On the other hand, expressive benefits allow people to express their values, social class, and lifestyle choices to themselves and to others. We use the word "utilitarian" in the sense of economic utility (e.g., an investor is utilitarian when she aims at maximizing her gains), rather than with the meaning the word has in normative ethical theory (that is, the greatest good for the greatest number). And we use the term "expressive" (or "moral") to include benefits for others that result from the investment as well as emotional benefits from the investor's feelings of having financially supported good things (Beal et al., 2005). The present paper adds to the literature on SRI by manipulating the type of assets people invest in and assessing their reactions when the financial performance is unsatisfactory.

We maintain that, in the financial domain, if a decision is coded as ethical, then the moral dimension becomes part of the allocation process and investors are more likely to report that their decisions are driven by the desire to be true to their moral values. Consequently, we also hypothesized that when people are driven by a moral motivation, they should feel lower disappointment when the financial results of their investments are unsatisfactory. In contrast, when people interpret the decision as driven by financial motivations, the moral dimension should not affect the way they invest their money because the decision is driven by the desire to maximize their gains. However, by being focused mainly on the financial, monetary out-

come of their investments, these people must experience the highest disappointment² once they learn that a different strategy could have yielded a better result. In other words, they do not have any additional motivation, besides financial performance, that is strong enough to help them cope with an unsatisfactory outcome. On this basis, we hypothesized that investors who report being more interested in being true to their moral values should feel less disappointment than those who report being more interested in the financial return, when their investments achieve unsatisfactory results.

2 Study 1

In Study 1, we asked participants to choose among different investment portfolios, then we measured their self-reported motivation to either gain money or to be true to their moral values, and their disappointment once informed that a different decision would have yielded a better outcome.

2.1 Method

Participants. One hundred fifty-two people (33% female; mean age 28 years; $SD = 7.29$) took part in Study 1. They were contacted on Amazon's Mechanical Turk and paid \$0.20. Amazon Mechanical Turk is now commonly used to recruit adult participants for online studies and has been validated by Buhrmester, Kwang, and Gosling (2011), and Paolacci, Chandler, and Ipeirotis (2010). All participants were from the United States.

Materials and procedure. Participants were presented with the following scenario:

Imagine you want to invest \$10,000 in the stock market. Among the many different alternatives you have looked at, you have found the following portfolios. Which portfolio would you prefer to invest in?

- **PORTFOLIO 1:** *This portfolio is invested in the stocks of two companies involved with fair trade.* [Moral portfolio]
- **PORTFOLIO 2:** *This portfolio is invested in the stocks of two companies that belong to the pornography sector.* [Immoral portfolio]
- **PORTFOLIO 3:** *This portfolio is invested in the stock of a company that belongs to the pornography sector and the stock of a company involved with fair trade.* [Mixed portfolio]

²We use the term "disappointment" because that is what we asked our subjects. Technically, "regret" may be a better term, because we ask subjects to compare the outcome to that of another option rather than another state of the world. In Study 4 we ask about both.

Participants were asked to choose one of the three different portfolios. Once participants made their choice, they were presented with a new screen and asked to report the main motivation that drove their decisions. Answers were provided on a 9-point scale, with the two extremes labeled, respectively: “Being true to my moral values” and “Gain money.” The midpoint of the scale was labeled “Both motivations.” No numbers were associated with the points on the scale (we only used the labels described above); however, in the analyses we assigned values ranging from -4 , associated with the moral motivation end of the scale, to $+4$, associated with the financial motivation end of the scale. In a subsequent screen, participants were informed that, by choosing one of the other two portfolios, they would have gained at least \$5,000 more and rated their disappointment on a 6-point scale ranging from 0 (“not disappointed at all”) to 5 (“very disappointed”). Finally, in an additional screen, we presented a manipulation check to assess whether fair-trade and pornography were actually perceived to have a different moral value. Participants rated how morally acceptable they perceived fair trade and pornography using two 7-point scales ranging from 1 (“not moral at all”) to 7 (“very moral”).

2.2 Results

Preliminary analyses and choices. We first looked at the moral value of the two industrial sectors. The manipulation check confirmed that fair trade ($M = 5.46$; $SD = 1.81$) was judged as more morally acceptable than pornography ($M = 3.91$; $SD = 2.30$), $t(151) = 8.97$; $p < .01$. Looking at choices, about half of all participants chose to invest in the moral portfolio (49%; $N = 75$), whereas a slightly lower number of people chose the mixed portfolio, which was investing in both a moral company and an immoral company (44%; $N = 66$). Only a few participants decided to invest in the immoral portfolio (7%; $N = 11$). Nonetheless, we treated choice as an interval scale (1–3). Finally, motivation and disappointment ratings were positively correlated, $r = .53$, $p < .01$.

Motivation ratings. Participants who chose the moral portfolio reported lower values on the motivation scale compared to participants who chose one of the other two portfolios (ratings ranged between -4 and 4 ; lower values corresponded to a higher motivation to be true to one’s moral values and higher values corresponded to a higher motivation to gain money). The difference was statistically significant: $M_{\text{moral}} = .31$ ($SD = 2.82$); $M_{\text{mixed}} = 2.47$ ($SD = 1.60$); $M_{\text{immoral}} = 2.64$ ($SD = 1.57$); $F(1,150) = 29.47$; $p < .001$.

Disappointment ratings. We ran the same analysis to assess whether participants who chose to invest morally

felt less disappointment after learning that they would have been better off making a different choice. Consistent with the results found for the motivation variable, people who invested in the moral portfolio reported a significantly lower disappointment (scaled 0–5) than those who invested in the immoral one: $M_{\text{moral}} = 2.56$ ($SD = 1.80$); $M_{\text{mixed}} = 3.29$ ($SD = 1.47$); $M_{\text{immoral}} = 3.36$ ($SD = 1.12$); $F(1,150) = 6.91$; $p = .009$.

2.3 Discussion

Results of Study 1 supported our hypothesis, showing that when people choose a moral investment they do so because, besides being interested in gaining money, they are also interested in being true to their moral values. Indeed, ratings on the motivation scale showed that participants who invested morally were driven by both motivations (being true to their moral values and gaining money), whereas participants who invested in the immoral portfolio were mainly interested in the financial outcome of their investments. Furthermore, consistent with our hypothesis, participants who were less willing to compromise their moral values felt also less disappointment once informed that a different choice could have yield a better outcome.

At this point, the reader could be tempted to conclude that people who invest morally are more influenced by the moral dimension of their decision and, therefore, feel less disappointment. However, in Study 1, we compared moral and immoral portfolios, and that made it impossible to assess if these results depended on participants’ decision to invest morally or on their decision to avoid the immoral asset. To overcome this confounding factor, in Study 2, we tested two different conditions in which participants were asked to choose either between moral and neutral portfolios, or immoral and neutral ones.

3 Study 2

Study 2 was designed to overcome the confounding that arose from the previous study. Participants were assigned to two different conditions and asked to choose one of three investment portfolios. In the moral condition, they were presented with a neutral portfolio, a moral portfolio, and a mixed portfolio invested in both the neutral and the moral assets, whereas in the immoral condition, they were presented with the neutral portfolio, an immoral portfolio, and a mixed one invested in both the immoral and neutral assets. If being moral is the main drive of the results found in the previous study, we should replicate the results only in the moral condition. That is, upon learning that their investment could have achieved a higher performance, participants choosing the moral portfolio should feel less disappointment than those choosing the neutral

portfolio since they did so to be true to their moral values. On the contrary, if avoiding immoral assets is the main reason why people felt less disappointment in the face of an unsatisfactory financial outcome, results from Study 1 should be replicated only in the immoral condition. In this case, upon learning that their investment could have achieved better results, participants choosing the neutral portfolio should feel less disappointment than those choosing the immoral portfolio since they did so to be true to their moral values.

3.1 Method

Participants. One hundred fifty-eight participants (45% female; mean age 31 years, $SD = 10.81$) took part in Study 2. They were contacted on Amazon Mechanical Turk and paid \$0.15 to complete a short questionnaire. People who participated in Study 1 were filtered using TurkGate (Goldin & Darlow, 2013) and could not take part in Study 2. Participants were randomly assigned to one of the two experimental conditions: eighty participants completed the moral condition, whereas seventy-eight completed the immoral condition.

Materials and procedure. Participants were presented with the following scenario (wording for the immoral condition is reported in parenthesis):

Imagine you want to invest \$10,000 in the stock market. Among the many different alternatives you have looked at, you have found the following portfolios. Which portfolio would you prefer to invest in?

- **PORTFOLIO 1:** *This portfolio is invested in the stocks of two companies that belong to the airline sector.* [Neutral portfolio]
- **PORTFOLIO 2:** *This portfolio is invested in the stocks of two companies involved with microcredit (vivisection).* [Moral (Immoral) portfolio]
- **PORTFOLIO 3:** *This portfolio is invested in the stock of a company involved with microcredit (vivisection) and the stock of a company that belongs to the airline sector.* [Mixed portfolio]

In both the moral and the immoral conditions, participants were also presented with a definition of the business sectors composing each portfolio. Therefore, in the moral condition, we provided a definition of the microcredit sector, whereas in the immoral condition, we provided a definition of the vivisection sector. In both conditions, participants could also read a definition of the neutral asset (airlines).³

³The definitions of the three industrial sectors were the following: microcredit: this industrial sector is involved with the act of lending a small amount of money at low interest to small businesses in the developing

After making their choices, participants were presented with a screen in which they were asked to rate their motivation on the same 9-point scale already used in Study 1. Subsequently, in a different screen, they were informed about the unsatisfactory outcome of their investment and asked to rate their disappointment on a 6-point scale like the one used in the previous study. At the end of the study, we presented a manipulation check screen in which participants were asked to rate the moral value of the industrial sectors with which they were presented. Depending on the condition, a first question asked to rate the moral value of microcredit or vivisection, whereas a second question asked to rate the moral value of the airline sector. Since we had a neutral asset in addition to the moral and immoral ones, this time we used a bipolar scale ranging from -3 (“very immoral”) to 3 (“very moral”); the midpoint was labeled “neither moral nor immoral.”

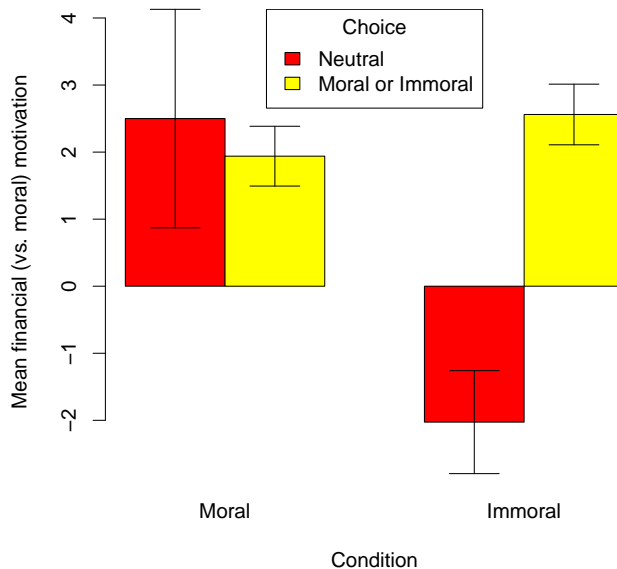
3.2 Results

Preliminary analyses and choices. To check how the three assets were perceived, we ran a repeated-measures analysis of variance with asset (moral/immoral vs. neutral) as within-subject factor, condition (moral vs. immoral) as between-subject factor, and ratings of moral value as the dependent variable. Results revealed a significant effect of asset, $F(1, 156) = 58.52$; $p < .01$; $\eta^2 = .27$, a significant effect of condition, $F(1, 156) = 9.89$; $p < .01$; $\eta^2 = .06$, and a significant interaction effect, $F(1, 156) = 87.09$; $p < .01$; $\eta^2 = .36$. Contrast analyses showed that in the immoral condition, there was a significant difference in moral value between vivisection ($M = -1.15$; $SD = 1.58$) and airlines ($M = 1.24$; $SD = 1.43$), $t(77) = 11.74$; $p < .01$. In the moral condition, despite being in the right direction, the difference between airlines ($M = .45$; $SD = 1.15$) and microcredit ($M = .69$; $SD = 1.31$) was not significant, $t(79) = 1.22$; $p = .23$. Finally, microcredit was judged significantly more moral than vivisection, $t(156) = 7.99$; $p < .01$, whereas airlines was judged significantly more moral when paired with the immoral sector than with the moral one, $t(156) = 3.86$; $p < .01$.

In the moral condition, 82% ($N = 66$) of participants chose a portfolio that was investing in stocks involved with microcredit (either the moral portfolio or the mixed one), whereas in the immoral condition, 53% ($N = 41$) of participants chose a portfolio that was investing in stocks involved with vivisection (either the immoral portfolio or the mixed one). Therefore, significantly more people chose the moral portfolio in the moral condition than the im-

world; vivisection: this industrial sector is involved with the practice of performing operations on live animals with the purpose of experimentation or scientific research; airlines: this industrial sector includes companies that provide air transport services for traveling passengers and freight.

Figure 1: Average motivation ratings in Study 2 by condition and investment choice. Lower values indicate a stronger motivation to be true to one's moral values; higher values indicate a stronger motivation to gain money (scale ranging from -4 to +4).



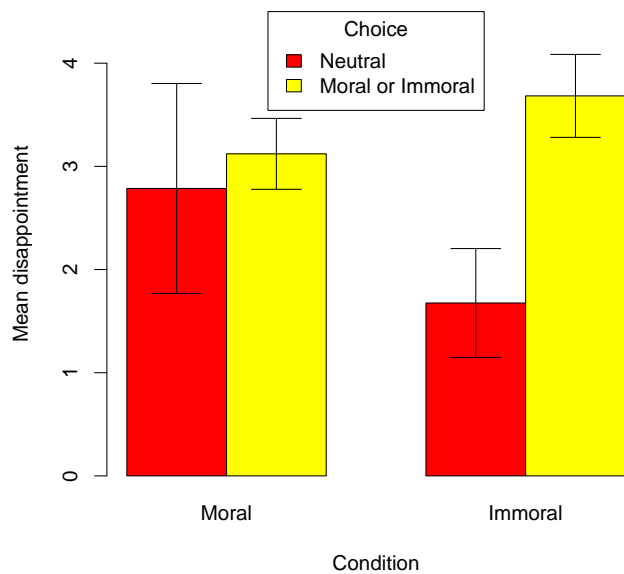
moral portfolio in the immoral condition, $\chi^2(1, 158) = 16.19; p < .01$. Finally, motivation and disappointment ratings correlated positively, $r = .51, p < .01$.

Motivation ratings . We investigated motivation ratings by way of a 2 (condition: moral vs. immoral) \times 2 (choice: moral/immoral portfolios vs. neutral portfolio) analysis of variance. Results revealed a significant effect of condition, $F(1, 157) = 28.83; p < .01; \eta^2 = .16$, and a significant effect of choice, $F(1, 157) = 30.66; p < .01; \eta^2 = .17$. This analysis also showed a significant interaction effect, $F(1, 157) = 50.11; p < .01; \eta^2 = .25$ (see Figure 1).

Contrast effects revealed that participants choosing the neutral portfolio in the immoral condition ($M = -2.03; SD = 2.30$) were the most concerned with being true to their moral values: respectively, $t(154) = 10.33; p < .01$ for the comparison with participants who chose a portfolio invested in companies involved with vivisection ($M = 2.56; SD = 1.43$); $t(154) = 9.86; p < .01$ for the comparison with participants choosing a portfolio invested in companies involved with microcredit ($M = 1.94; SD = 1.81$); and $t(154) = 7.37; p < .01$ for the comparison with participants choosing the neutral portfolio in the moral condition ($M = 2.50; SD = 2.82$).

Disappointment ratings. We investigated participants' disappointment by way of a 2 (condition: moral vs. immoral) \times 2 (choice: moral/immoral portfolios vs. neutral

Figure 2: Average disappointment ratings in Study 2 by condition and investment choice. Higher values indicate more intense disappointment (scale ranging from 0 to 5).



portfolio) analysis of variance. Results revealed a significant effect of choice, $F(1, 157) = 19.00; p < .01; \eta^2 = .11$, and a significant interaction effect, $F(1, 157) = 9.68; p < .01; \eta^2 = .06$. The effect of condition was not significant, $F(1, 157) = 1.04; p = .31; \eta^2 < .01$ (see Figure 2).

Contrast effects showed that participants choosing the neutral portfolio in the immoral condition ($M = 1.68; SD = 1.58$) were those experiencing the lowest level of disappointment: $t(154) = 6.12; p < .01$ for the comparison with participants who chose a portfolio invested in companies involved with vivisection ($M = 3.68; SD = 1.27$); $t(154) = 4.87; p < .01$ for the comparison with participants who chose a portfolio invested in companies involved with microcredit ($M = 3.12; SD = 1.40$); and $t(154) = 2.45; p < .02$ for the comparison with participants who chose the neutral portfolio in the moral condition ($M = 2.79; SD = 1.76$).

3.3 Discussion

Study 2 was devised to assess whether people's higher motivation to be true to their moral values and lower disappointment depend on their decision to invest in a moral asset or, rather, on their decision to avoid investing in immoral assets. Results showed that participants were significantly more motivated to behave in accordance with their moral values when they were choosing the neutral portfolio over the immoral one than when they were choosing the moral portfolio over the neutral one. Therefore, we found additional support for our hypothesis that being true to one's moral values leads to feel less disappoint-

ment once an investment achieves and unsatisfactory performance. However, findings from Study 2 suggest that this is particularly true when people did not invest in an immoral asset rather than when they decide to invest in a moral one.

A possible problem with Study 2 is that the neutral portfolio was judged significantly more moral when it was paired with the immoral portfolio than when it was paired with the moral one. However, this result could depend from the fact that the ratings of moral value were provided at the end of the study and could have been influenced by the comparison of the neutral asset with either the moral or the immoral one.

4 Study 3

In Study 2, participants' decisions to avoid the immoral portfolio were associated with a stronger motivation to be true to their moral values than when they were choosing to invest in a moral portfolio. However, the presence of a neutral alternative may have made the immoral asset look excessively aversive, thus enhancing, in people's minds, its negative moral value. Therefore, the comparison with a neutral portfolio could have increased participants' moral awareness and their motivation to invest in a way that did not require conceding their moral values.

In Study 3, we decided to test our hypotheses in a context that should show in an even clearer way that the reduced disappointment depends on people's desire to avoid making tradeoffs between their moral values and more material rewards, such as maximizing financial gains. In this study, participants were simply asked to choose whether they wanted to invest or not in a specific portfolio. If the results of Study 2 did not depend on the specific comparisons available, we should replicate the results even when participants are asked to consider only one portfolio.

4.1 Method

Participants. Two hundred fifty-two participants (39% female; mean age 29 years, $SD = 9.45$) took part in Study 3. They were contacted on Amazon Mechanical Turk and paid \$0.15. People who participated in previous studies on the same subject were filtered using TurkGate (Goldin & Darlow, 2013). Participants were randomly assigned to one of the three experimental conditions: eighty-five participants completed the immoral condition; eighty-two participants completed the neutral condition; and eighty-five participants completed the moral condition.

Materials and procedure. Participants were presented with the following scenario (immoral/neutral industrial sectors in parenthesis):

Imagine you want to invest \$10,000 in the stock market. Among the many different alternatives you have looked at, you have found a portfolio which invest in the stock of two companies that belong to the microcredit (vivisection/airlines) industrial sector. Would you like to invest in this portfolio?

As in Study 2, participants were provided with a definition of the industrial sector in which was investing the portfolio they were presented with. In each condition, after reading the scenario, participants decided whether or not they wanted to invest. In a subsequent screen, they rated the motivation driving their decision and then, in another screen, their disappointment upon learning that a different decision would have yielded a better economic outcome. In the last screen, participants rated the moral value of the industrial sector in which the portfolio was invested. Motivation, disappointment, and moral value questions were the same as in Study 2.

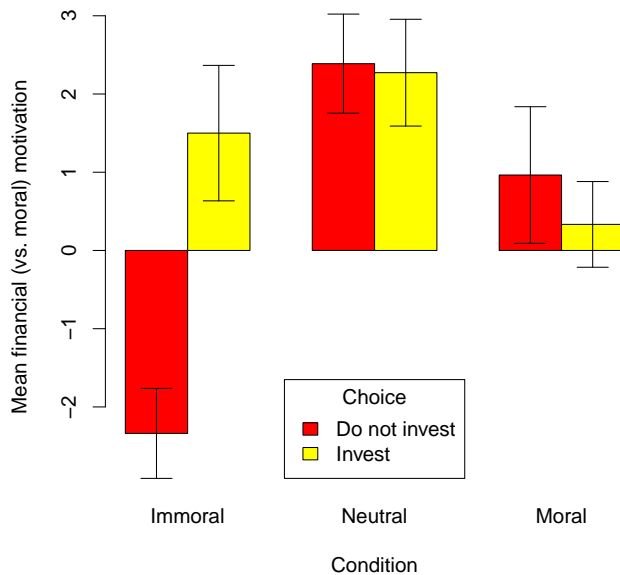
4.2 Results

Preliminary analyses and choices. Ratings of moral value for each industrial sector were analyzed by way of an analysis of variance with condition (immoral, neutral, moral) as the independent variable. Results revealed a significant effect of condition, $F(2, 251) = 84.23$; $p < .01$; $\eta^2 = .40$. Contrast effects, showed that the airline sector ($M = .38$; $SD = 1.11$) fell in between the other two, and was rated significantly different from both: respectively, $t(249) = 9.08$; $p < .01$ for the comparison with vivisection ($M = -1.36$; $SD = 1.38$), and $t(249) = 3.36$; $p < .01$ for the comparison with microcredit ($M = 1.02$; $SD = 1.22$).

In the immoral condition, 24% ($N = 20$) of participants chose to invest in the portfolio composed of two vivisection companies. In the neutral condition, 40% ($N = 33$) of participants decided to invest. Finally, in the moral condition, 67% ($N = 57$) of participants decided to invest in the portfolio composed of two companies involved with microcredit. Results showed a significant difference between conditions, $\chi^2(2, 252) = 33.31$; $p < .01$. Significantly more people chose to invest in the moral condition than in the neutral condition, $\chi^2(1, 167) = 12.08$; $p < .01$, whereas significantly less people decided to invest in the immoral condition than in the neutral one, $\chi^2(1, 167) = 5.38$; $p = .02$. Again, motivation ratings correlated positively with disappointment ratings, $r = .51$, $p < .01$.

Motivation ratings. To investigate the motivation driving participants' decisions in the three conditions, we ran a 3 (condition: immoral, neutral, moral) \times 2 (choice: invest, do not invest) analysis of variance. Results revealed a significant effect of condition, $F(2, 251) = 29.38$; $p < .01$; $\eta^2 = .19$, and a significant effect of choice, $F(1, 251)$

Figure 3: Average motivation ratings in Study 3 by condition and investment choice. Lower values indicate a stronger motivation to be true to ones' moral values; higher values indicate a stronger motivation to gain money (scale ranging from -4 to +4).



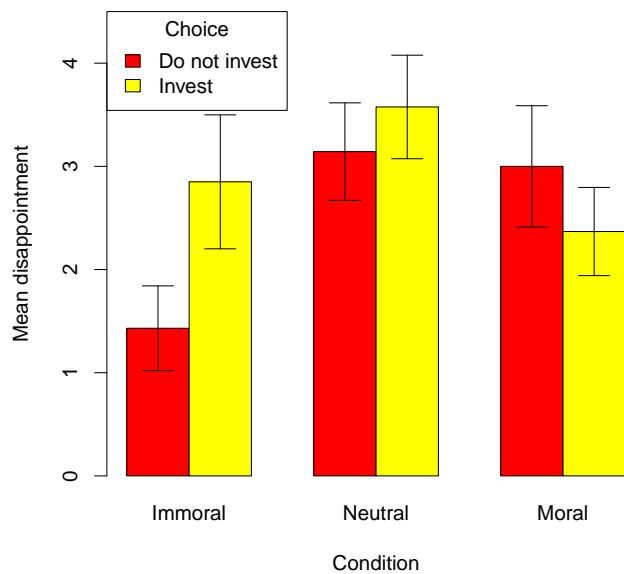
= 12.21; $p < .01$; $\eta^2 = .05$. We also found a significant interaction effect between choice and condition, $F(2, 251) = 21.21$; $p < .01$; $\eta^2 = .15$ (see Figure 3).

Contrasts showed that the immoral condition was the only one in which the motivation of participants who invested and those who did not were different. Participants who did not invest in the immoral portfolio ($M = -2.34$; $SD = 2.32$) reported being significantly more interested in being true to their moral values than those who invested ($M = 1.50$; $SD = 1.85$), $t(246) = 7.89$; $p < .01$. Further, participants who did not invest in the immoral condition were more motivated by being true to their moral values compared with participants who decided to invest in the moral portfolio ($M = .33$; $SD = 2.06$), $t(246) = 7.50$; $p < .01$.

Disappointment ratings. A 3 (condition: immoral, neutral, moral) x 2 (choice: invest, do not invest) analysis of variance with disappointment ratings as the dependent variable revealed a significant effect of condition, $F(2, 251) = 10.46$; $p < .01$; $\eta^2 = .08$, and a marginally significant effect of choice, $F(1, 251) = 3.53$; $p = .06$; $\eta^2 = .01$. Further, we found a significant interaction between condition and choice, $F(2, 251) = 7.16$; $p < .01$; $\eta^2 = .06$ (see Figure 4).

The immoral condition was the only one in which people who invested ($M = 2.85$; $SD = 1.39$) and those who did not invest ($M = 1.43$; $SD = 1.66$) reported significantly

Figure 4: Average disappointment ratings in Study 3 by condition and investment choice. Higher values indicate a more intense disappointment (scale ranging from 0 to 5).



different disappointment ratings, $t(246) = 3.51$; $p < .01$, whereas in the moral condition, the difference was only marginally significant ($M = 3.00$; $SD = 1.52$ for participants who did not invest and $M = 2.37$; $SD = 1.61$ for participants who invested), $t(246) = 1.73$; $p < .09$. Participants who did not invest in the immoral asset felt significantly less disappointment when informed about the unsatisfactory financial result than participants who invested in the moral asset, $t(246) = 3.27$; $p < .01$.

4.3 Discussion

Study 3 supported again the hypothesis that people are feeling less disappointment when investment decisions are motivated by the desire to be true to their moral values than when the motivation is to gain money. In this case, we replicated the findings of the previous studies in a condition of separate evaluation in which participants could not compare several portfolios with different levels of morality. Therefore, we showed that it is not just the presence of less unethical alternatives that makes investors especially sensitive to the moral dimension of an asset.

5 Study 4

In Study 4, the goal was to control for some additional confounding factors that may have influenced the findings of the first three studies. For one thing, we always manipulated the moral value of the investments by using different industrial sectors. It is possible that the specific as-

set in which moral and immoral portfolios were investing had an effect on the motivation driving participants' decisions and the disappointment ratings. In addition, we always presented participants with minimal information about the portfolios, without specifying important financial data such as the expected return. It is possible that people would be more willing to invest in the immoral portfolio if they have more detailed financial information that could help them set more precise expectations about the future performance. Finally, it could be argued that we were actually measuring participants' regret rather than their disappointment. Therefore, it could be useful to compare ratings for both disappointment and regret. Study 4 was aimed at controlling for these confounding factors and expected to replicate the earlier findings.

5.1 Method

Participants. Two hundred forty-four participants (44% female; mean age 31 years, $SD = 10.17$) took part in Study 4. They were contacted on Amazon Mechanical Turk and paid \$0.20. People who participated in previous studies on the same subject were filtered using TurkGate (Goldin & Darlow, 2013). Participants were randomly assigned to one of the two experimental conditions: one hundred three participants completed the moral condition; one hundred forty-one participants completed the immoral condition.

Materials and procedure. In Study 4, participants were presented with the following scenario (wording for the immoral condition in parenthesis):

Imagine you want to invest \$10,000 in the stock market. Among the many different alternatives you have looked at, you have found a portfolio of companies that belong to the technology sector. The companies in which the portfolio is investing are currently realizing a stream of new software and internet services that look very promising and were met by very positive reviews in the media.

These companies established their factories in America and have never outsourced the production of any of their products. In addition, they have always been against child labor and they are regarded as some of the companies offering the best social and economical conditions for their employees. (However, these companies have also been criticized in the media because of their outsourcing practices and for taking advantage of child labor in the factories of their East-Asian contractors. Violations of the workers basic human rights in the factories abroad have been demonstrated several times already.)

Technical information about the portfolio:

- Mean stock value for the companies in which the portfolio invests: \$12.47
- Mean Beta: 0.90

- Expected return of the portfolio for the next 12 months: 5%

Would you like to invest in this portfolio?

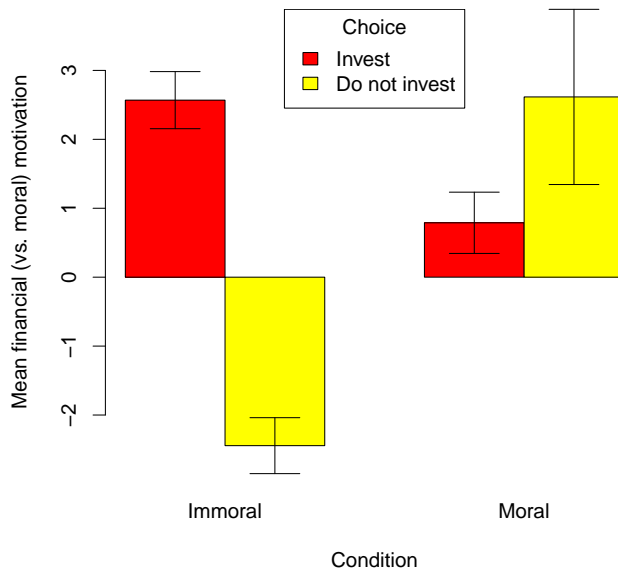
Participants were asked to decide whether or not they wanted to invest in the portfolio they were presented with. Then, in a separate screen, they were asked to rate the motivation driving their investment decision (the scale was the same as in previous studies) and also to provide an estimate of the expected return of the portfolio. This question was presented in order to test and control for the possibility that financial expectations varied as a function of the moral nature of the fund, and these expectations, rather than the moral value, account for the differences in motivation and regret. In a subsequent screen, upon learning that a different decision would have yielded a better economic outcome, participants rated both their disappointment and their regret (in both cases the responses were provided on a scale ranging from 1 to 5). Finally, participants rated the moral value of the technological companies in which the portfolio was invested. In particular, this question asked about the way these companies were managing the production of their products (taking advantage of outsourcing strategies or not) and the working conditions of their employees.

5.2 Results

Preliminary analyses and choices. Ratings of moral value were analyzed by way of t-test with condition (moral vs. immoral) as the independent variable. Results revealed a significant effect of condition ($M_{\text{moral}} = 2.01$, $SD = 1.29$ versus $M_{\text{immoral}} = -1.87$, $SD = 1.21$), $t(243) = 24.07$; $p < .01$. In the immoral condition, 36% ($N = 51$) of participants chose to invest in the portfolio, whereas, in the moral condition, 87% ($N = 90$) of participants decided to invest ($\chi^2(1, 244) = 63.98$; $p < .01$, for the difference). An analysis of variance 2 (condition: moral vs. immoral) \times 2 (choice: invest vs. do not invest) with the evaluation of the 1-year expected value as dependent variable showed only a not-quite significant effect of choice ($M_{\text{invest}} = 10.24$, $SD = 19.24$ versus $M_{\text{notinvest}} = 6.13$, $SD = 5.84$), $F(1, 243) = 5.04$; $p = .08$; $\eta^2 = .01$, whereas the effect of the condition was not significant, $F(1, 243) = .29$; $p = .59$; $\eta^2 < .01$. Finally, the interaction was not significant, $F(1, 243) = .23$; $p = .63$; $\eta^2 < .01$. Disappointment and regret ratings were highly positively correlated, $r = .72$, $p < .01$, therefore they were averaged together. This new disappointment variable correlated positively with motivation, $r = .45$, $p < .01$.

Motivation ratings. To investigate the motivation driving participants' decisions in the two conditions, we ran a 2 (condition: moral, immoral) \times 2 (choice: invest, do not invest) analysis of variance. Results revealed a significant

Figure 5: Average motivation ratings in Study 4 by condition and investment choice. Lower values indicate a stronger motivation to be true to ones' moral values; higher values indicate a stronger motivation to gain money (scale ranging from -4 to +4).

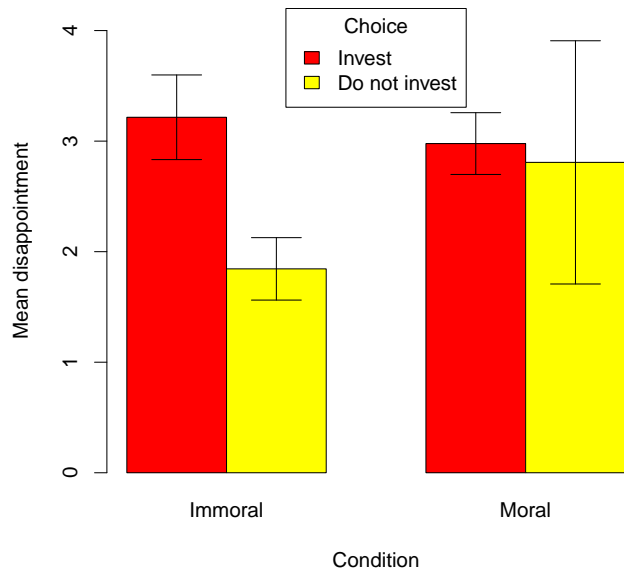


effect of condition, $F(1, 243) = 24.25; p < .01; \eta^2 = .09$, and a significant effect of choice, $F(1, 243) = 22.88; p < .01; \eta^2 = .09$. In addition, we also found a significant interaction effect between choice and condition, $F(1, 243) = 105.42; p < .01; \eta^2 = .31$ (see Figure 5).

Participants who did not invest in the immoral portfolio reported being the most interested in being true to their moral values. Contrast effects showed that the difference was significant for the comparison between participants who did not invest in the immoral portfolio ($M = -2.44; SD = 1.94$) and participants who invested in the immoral asset ($M = 2.57; SD = 1.47, t(240) = 17.27; p < .01$). The difference was also significant for the comparison with participants who did not invest in the moral portfolio ($M = 2.62; SD = 2.10, t(240) = 8.19; p < .01$). Finally, participants who did not invest in the immoral portfolio were also more interested in being true to their moral values than participants who invested in the moral asset ($M = .79; SD = 2.12, t(240) = 10.67; p < .01$). Adding participants' estimates of the 1-year expected return of the portfolio as a covariate did not change the results and the covariate had no significant effect on the motivation driving investment decisions ($p = .86$).

Disappointment ratings. A 2 (condition: immoral, moral) x 2 (choice: invest, do not invest) analysis of variance with the combined disappointment measure as the dependent variable revealed a significant effect of choice, $F(1, 243) = 10.61; p < .01; \eta^2 = .04$, and a significant inter-

Figure 6: Average disappointment and regret ratings combined by condition and investment choice in Study 4. Higher values indicate a more intense disappointment (scale ranging from 0 to 5).



action between condition and choice, $F(1, 243) = 6.44; p < .02; \eta^2 = .03$. The effect of condition was not significant, $F(1, 243) = 2.35; p = .13; \eta^2 = .01$ (see Figure 6).

Participants who did not invest in the immoral portfolio reported the lowest disappointment ($M = 1.84; SD = 1.35$). Contrast effects showed that the difference was significant when comparing the disappointment ratings of these participants with the disappointment of those who invested in the immoral portfolio ($M = 3.22; SD = 1.36, t(240) = 5.70; p < .01$). A significant effect was also found when comparing participants who did not invest in the immoral portfolio and those who did not invest in the moral one ($M = 2.81; SD = 1.82, t(240) = 2.36; p < .02$). Finally, there was a significant effect even for the comparison with participants who invested in the moral portfolio ($M = 2.98; SD = 1.33, t(240) = 5.54; p < .01$). Adding participants' estimates of the 1-year expected return of the portfolio as a covariate did not change the results and the covariate had no significant effect on participants' disappointment ($p = .22$).

5.3 Discussion

The results of Study 4 supported the hypothesis even in a condition in which the portfolio was invested in the same industry in both the moral and immoral conditions. This means that the results found in the previous studies were not influenced by the different sectors presented in the moral and immoral conditions. Finally, the results of Study 4 showed that the effect was replicated despite the

fact that in both conditions participants received the same financial information (expected return), therefore showing that the impact of the moral value of an asset goes beyond the simple evaluation of the economic utility of the investment.

6 General discussion

The present paper had the main goal of empirically demonstrating that investors are not exclusively interested in obtaining high gains, although the outcome of investments is certainly important. Further, we expected to find that people who are more motivated to be true to their moral values should have experienced lower disappointment upon learning that a different investment decision could have yielded a better outcome.

In Study 1, we contrasted a moral portfolio invested in companies involved with fair trade and an immoral portfolio invested in companies involved with pornography, finding that participants choosing the moral portfolio were more likely to do so because they wanted to be true to their moral values. In turn, these participants felt also lower disappointment, therefore demonstrating that having other motivations beyond the simple financial results can help them to cope with unsatisfactory investment performance. These results lend empirical support to Statman's (2004) model of utilitarian and expressive benefits of investments and extended it by showing that the goal pursued by an investor can influence the way financial outcomes are evaluated. Therefore, not only the motivation behind investment decisions is not exclusively driven by a desire to achieve high returns, but the evaluation of the financial performance is influenced by non-financial dimensions, too.

In Study 2, we replicated our findings in a condition in which moral and immoral assets were not directly compared but were presented along with a (relatively) more neutral asset. Subsequently, Study 3 lend support for our hypothesis in a context in which the moral and immoral assets were presented separately, that is without being compared with any other asset. Both in Studies 2 and 3, participants who did not invest in the immoral portfolio reported being more interested in being true to their moral values rather than maximizing the financial outcome, and reported a lower disappointment upon learning that a different decision would have yielded a better economic outcome. These findings support the results found in Study 1, highlighting that people chose the moral outcome because they wanted to be true to their moral value and did so to avoid the immoral asset.

Finally, in Study 4, we replicated our findings even presenting participants with the same industrial sector in both the moral and immoral conditions and stating explicitly

the expected return of the portfolio. In this way, we were able to show that the findings did not depend on the specific industrial sectors used in the moral and immoral conditions in the previous three studies. Study 4 also demonstrated that this effect is independent from investors' inferences about the expected return of moral and immoral assets.

Nevertheless, unanswered questions remain for future research. For instance, we always used the framing of a forgone gain, since participants were informed that in making a different choice they could have gained more money. We obviously are aware of the strong impact that a different framing used to report a financial outcome could have on people's judgments. Therefore, future research should investigate whether the same results can be replicated when investors are presented with actual losses. Furthermore, it might be interesting to test whether investors who care about being true to their moral values would feel even happier when their investments achieve positive returns. In addition, we did not ask about disappointment/regret when the supposedly moral investment did not achieve its moral goals, or when the moral or neutral investment was revealed to be corrupt.

A limit of the present work is that we used only hypothetical scenarios. It would be interesting to test the same hypotheses with real investment choices, since the investment decision was also very simple, and participants had to choose between just a few portfolios, whereas in real financial markets investors can choose from hundreds of different investment alternatives. In addition, in Study 4, we compared moral and immoral conditions in which the financial information (e.g., expected return) was the same. It would be interesting to test whether an investor would be willing to avoid an immoral asset even when this alternative is characterized by a higher expected return or when the moral asset is riskier. Survey studies can help provide some answers to these questions. The success of best of sector ethical funds shows that investors are willing to pay higher transaction costs for the only benefit of investing in a fund branded as socially responsible (Beal et al., 2005). Still, we believe that more research pointed at answering these questions is needed.

Another limit concerns our comparisons of the effect of moral vs. neutral and immoral vs. neutral. Although we generally found that immorality mattered more than morality, we did not attempt to equate the degree of perceived morality (vs. neutral) with the degree of perceived immorality. It is possible, for example, that the immoral investments were viewed as strongly immoral by everyone while the moral ones were not seen as particularly superior by some subjects.

Despite the aforementioned limits, the studies described in this paper have an important applied value since the lower disappointment felt by investors who stay true to

their moral values can potentially exacerbate some investment mistakes. Previous work showed that people's affective reactions have a strong impact on their investment decisions (Lucey & Dowling, 2005). For instance, presenting returns in a larger numerical format (- 19%) induced people to feel a more intense feeling of disappointment and to sell their investment more often compared to a group of people who saw the same return reported using a smaller numerical format (- 0.19; Rubaltelli, Rubichi, Savadori, et al., 2005). Similarly, when non-financial motivations reduce the disappointment experienced by investors, their motivation to sell may be weakened leading them to hold on to a losing investment for too long, thus increasing the disposition effect (Shefrin & Statman, 1985; Barberis & Xiong, 2009, 2012).

To sum up, the main contribution of the present work was to demonstrate that people who decide to be true to their moral values when investing in the stock market experience a lower disappointment than people whose main motivation is to invest to get a financial benefit. These results extend Statman's (2004) model of utilitarian and expressive benefits of investment by showing more precisely when a non-financial dimension of investments (in our case the moral value of an asset) is incorporated in the investors' decision and when it influences their evaluation of financial outcomes. Concern for the moral value of one's investment decisions can offer a different point of view along which people can evaluate a financial outcome, and offers a cushion that makes unsatisfactory returns feel less disappointing.

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