Short-term Meditation Promotes Prosocial Investments During Financial Crises: A Laboratory Experiment

Sébastien Duchêne[1], Wael Bousselmi[2], Rassul-Ishame Kalfane[3], Patrick Sentis[4], Marc Willinger[5]

[1] Montpellier Business School, Montpellier, France. E-mail: s.duchene@montpellier-bs.com

[2] ESSCA School of Management, Paris, France. E-mail: wael.bousselmi@essca.fr

[3] MRM, University of Montpellier, Montpellier Business School, France. E-mail: rassul-ishame.kalfane@umontpellier.fr

[4] MRM, University of Montpellier, Montpellier Business School, France. E-mail: patrick.sentis@umontpellier.fr

[5] CEE-M, Univ. Montpellier, CNRS, INRA, Montpellier SupAgro, Montpellier, France. E-mail: marc.willinger@umontpellier.fr

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Ethical Committee

This non-interventional study was performed under the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments. This research was validated by the ethical committee of the Center of Environmental Economics of Montpellier (University of Montpelier).

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Abstract

We examine the impact of short-term meditation on prosocial investment amidst a financial crisis, with 188 student subjects: 97 meditated for five consecutive days, while 91 listened to a narrative before an economic experiment. Our main results show that all participants invest more in the least profitable prosocial asset than in the most profitable antisocial asset, whether in times of calm or crisis. Moreover, in times of crisis, meditators disengage less from prosocial assets than non-meditators. Our findings suggest that meditation could mitigate the severity of market crashes and downturns and favor socially responsible investments even if these are less profitable.

Keywords: Meditation; socially responsible investment; financial crises; portfolio choice; experimental economics.

JEL Classification codes: C91, G4, G40

Conflicts of Interest disclosure

Declarations of interest: none for all the authors.

Data availability statement

Data and code are available at:
https://osf.io/ygbsp/?view_only=6a49cb4ec21e4910834078e9d615114a

1. Introduction

Mindfulness affects most people's decisions throughout their lives and well-being (see Sun et al., 2015 for a review, De Vibe et al., 2012, Wen et al., 2022). Increasing mindfulness through meditation can therefore drastically change the way we make decisions. From their meta-analysis, Luberto et al. (2018) reported that meditation tends to reinforce pro-sociability and other-focused ethical behaviors (see also Iwamoto et al., 2020 or Orazi et al., 2019), as well as moral responsibility (Small and Lew, 2019) which can have positive effects on social interactions. The economy and financial concerns constitute a significant source of stress for a substantial portion of the population[1]. In the realm of financial management, there is a growing acknowledgment of the positive impact that meditation can have on fostering improved investment behavior[2] and on diminishing avaricious monetary attitudes (Gentina et al., 2020). Many financial firms such as BlackRock, Deutsche Bank, and Goldman Sachs have already meditation programs in place for their employees[3].

In this paper was explored the influence of meditation on financial decision-making, particularly focusing on economic choices where pro-sociality is presumed to exert minimal or no influence due to prevailing self-interests. Despite the strong presence of dominant self-interests in financial decisions, instances where investments yield positive or negative externalities on third parties may lead conscious investors to exhibit less selfish behavior. In essence, these investors may be inclined to prioritize the well-being of third parties over solely maximizing their returns[4]. Such a pro-social effect on financial investments is expected to be even more pronounced when investors' awareness is enhanced through meditation.

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[1] 2022 survey of the American Psychological Association. (https://www.apa.org/news/press/releases/stress/2022/concerned-future-inflation).
[2] "How To Use Meditation To Become A Better Investor, Yes Seriously", David Rae, Forbes, May 25, 2019.
[3] "Meditation for Investment Professionals" by Jason Voss CFA (https://blogs.cfainstitute.org/investor/2016/02/29/meditation-for-investment-professionals/).
[4] The experimental and behavioral economics literature over the last 30 years documented the widespread presence and importance of social preferences in individuals (e.g., Fehr & Fischbacher, 2002; Camerer & Fehr, 2006; Bowles & Polania-Reyes, 2012).

We conducted an experiment wherein subjects were tasked with allocating their available budget among several assets, aiming to scrutinize financial decisions that yield positive or negative externalities affecting third parties. To address the potential pro-social impact on investment decisions, we enhanced self-interest motives by manipulating asset returns. Specifically, assets involving a negative externality were made more profitable than those associated with a positive externality, keeping all other factors constant. The budget allocation task was repeated over ten periods so that the available budget changed with the returns of past investments decisions. Additionally, following a sequence of stable returns for all assets, we introduced an adverse crisis scenario that led to a decline in the returns of all assets.

Our experimental setup enabled us to address two key issues. Firstly, we questioned the expected positive impact of meditation on financial investments, particularly those with low (high) negative (positive) consequences for third parties. Secondly, we investigated whether mindfulness could alleviate the instability of socially responsible assets during financial crises.

Hereafter, we examine the relevant literature in the field and state our hypotheses accordingly.

Existing literature suggests socially responsible assets outperform conventional ones during financial crises (Statman, 2004; Bollen, 2007; Nofsinger and Varma, 2014, Lins et al., 2017). For instance, high-CSR firms outperformed low-CSR firms during the 2008 trust crisis (Lins et al., 2017), which could be attributed to preserved trust, moral benefits (Bonnefon et al., 2022; Duchêne et al., 2022). In other words, investors could see higher social capital as insurance when the context is more threatening, while companies with higher CSR ratings would gain investors' loyalty and attract new ones seeking safer opportunities. Bollen (2007) found investor cash flows in socially responsible funds are more responsive to positive returns and less sensitive to negative ones compared to conventional funds, while Barreda-Tarrazona et al. (2011) have shown that investors invest a higher amount in funds displaying socially responsible characteristics.

Nofsinger and Varma (2014) attributed the CSR-performance gap to the protective nature of SRI and ESG attributes, making ESG and SRI investments more resilient during crises, while Krueger et al. (2020) highlight the importance for institutional investors of taking climate risk hedging into account in a context of rising temperatures. This makes them appealing to investors seeking stability and sustainability. Conversely, engaging actively in social and environmental concerns may enhance the value of a company. For instance, Dimson et al. (2015) demonstrated that successful engagements lead to positive abnormal returns, whereas unsuccessful ones result in zero abnormal returns.

Riedl and Smeets (2017) found that investors may prioritize moral concerns over financial performance regarding environmental issues, while Heeb et al. (2023) showed that they would accept to pay more for sustainable assets. Bauer et al. (2021) revealed that two-thirds of participants in a survey of pension fund members exhibit a tendency to support the expansion of their fund's engagement with businesses, premised on specific Sustainable Development Goals (SDGs), notwithstanding their anticipation of potential adverse effects on financial returns, while Gevorkova et al. (2023) show that this relative enthusiasm could be explained by a desire to clear one's conscience when feeling guilty.

Drawing from this literature, we propose our initial hypothesis, which will be subjected to scrutiny through our experimental investigation.

H1 (**Attraction for green**): Participants, regardless of meditation, will demonstrate a preference for green assets over brown assets, indicating an intrinsic attraction towards green investments.

However, during financial crises, trade-offs between moral concerns and financial performance may lessen due to widespread underperformance in all assets. Guenster et al. (2022) showed that participants assign less value to companies with positive externalities in economic downturns, while Wang et al., 2011 found no clear relationship between the behavior of individual investors and the CSR performance of companies. Therefore, studying how investors adjust their decisions during a financial crisis is crucial. Investigating

investment choices during depression can reveal insights into how individuals' prosociality affects their financial decisions.

Beyond their devastating effect, financial crises can deeply affect the behavior of investors and financial professionals. This impact is often manifested through elevated stress levels (Lo and Repin, 2002), leading to potential reductions in investors' risk tolerance (Guiso et al., 2018; Cohn et al., 2015; Porcelli and Delgado, 2009; Kandasamy et al., 2014) and lasting changes in investment behavior (Malmendier and Nagel, 2011). In addition, higher stress may lead to higher depletion of self-control as shown by Kocher et al. (2019) in an innovative experiment. They observed that the depletion of self-control leads to overpricing in experimental asset markets and that traders with lower levels of self-control reported stronger emotions after the market.

H2 (**Reluctance to take risks during crisis**): Irrespective of meditation practice, participants are expected to demonstrate hesitancy in investing in risky assets after a negative shock, resulting in an increased allocation towards cash during crisis periods.

Mindfulness meditation has shown positive effects on cognitive processes, decision-making, stress reduction (Levenson et al., 2012), emotional regulation, brain functioning (Sun et al., 2015; Levenson et al., 2012; Tang et al., 2007, 2009, 2010; Hölzel et al., 2011; Boccia et al., 2015), moral imagination (La Forge, 2004), ethical vision (La Forge, 2000), as well as ethical decision-making (e.g., less cheating; Ruedy and Schweitzer, 2010). Long-term meditation practice can promote prosocial behavior (Luberto et al., 2018). Meditation-based therapies, such as mindfulness and loving-kindness meditation (LKM), improve emotional outcomes (Sears et al., 2011). LKM cultivates compassion and empathy (Lutz et al., 2009; Brefczynski-Lewis et al., 2007), with even short sessions promoting social connection and positivity (Hutcherson et al., 2008). Implementing meditation programs in schools and workplaces can enhance subjective well-being and promote sustainable behavior (Ericson et al., 2014) and pro-environmental behaviors. Overall, meditation offers various positive effects, making it valuable in educational and professional settings.

The practice of meditation is thought to influence two key areas in financial crises and the inclination towards green assets. First, it strengthens emotional regulation, which may reduce the hasty and panic-driven behaviors that investors display during economic slumps. This improved self-control is essential for sustaining market steadiness and encouraging sound decision-making when markets are unstable. Second, meditation is connected to a closer alignment of individual actions with personal values, which often encompass care for the environment and social good.

H3 (**Impact of meditation on green asset investments**): Meditators, during quiet times (periods 1-5, out of a total of 10 periods, in our experimentation), will allocate a higher proportion of their investments towards green assets compared to non-meditators.

The overlap of better emotional regulation and actions that reflect personal values suggests that meditation could lead to a preference for green assets during financial troubles. Investors who practice meditation, maintaining their calm and adhering to investments that reflect their values, could collectively smooth out the extreme fluctuations and short-sightedness that often occur during financial crises. This combination, where meditation promotes both steady decision-making and a liking for sustainable investments, could act as a balancing factor in financial markets. Our research intends to explore how meditation might help create a more resilient and environmentally mindful financial landscape.

Therefore, our study addresses the research gap in the correlation between meditation and prosocial investments during crises. We aim to explore how meditation influences prosocial investments in financial crises, as it may enhance resilience and promote a shift towards a sustainable economy. By bridging these disciplines, i.e. mindfulness and financial investments, we investigate if meditation practitioners exhibit a preference for prosocial investment behaviors during crises, building on previous studies showing increased altruism with meditation (Condon et al., 2013; Luberto et al., 2018; Dagar, Pandey, and Navare, 2022) or increased pro-environmental behaviors with higher levels of mindfulness (Barbaro and Pickett, 2016).

H4 **(Impact of meditation on the reluctance to divest in green assets during the crisis)**: Meditators, during a negative return shock (periods 6-10, out of a total of 10 periods, in our experimentation), will exhibit lower disinvestment from green assets compared to non-meditators.

We endeavor to elucidate how internal shifts in consciousness might affect investment behaviors amidst economic fluctuations. Building upon the seminal work of Shapiro et al. (2006), who clarified the role of mindfulness in self-regulation, or Hafenbrack et al. (2020), who investigated the effects of meditative training on altruistic behavior, this paper investigates whether individuals engaged in meditation exhibit a propensity for prosocial investment behaviors before and during crises, and therefore displays a sustainable green preference, whatever the conditions and on a long-term perspective, thereby potentially bolstering resilience and catalyzing a shift toward a sustainable economy.

H5 (**Green preference resilience/stability during the whole experiment**): Meditators will display more stable investment choices consistently preferring green assets over brown ones, both before and during a shock.

Hypotheses H3-H5 imply that meditators consistently favor green investments over brown ones in all periods. They represent our key hypotheses concerning the impact of meditation on financial choices, considering the effects of stress, emotional regulation, and perspective-taking. The predictions suggest that meditation may influence participants' investment behavior, particularly regarding green assets, during both quiet and crisis periods. To our knowledge, no study has investigated the effect of meditation on financial decision-making in face of a negative market shock.

From a wide-ranging perspective, this research is part of the behavioral finance field, which has studied since its inception a full range of decision-making mechanisms that influence investor behavior. These mechanisms range from behavioral techniques and "nudges" (Gajewski et al., 2020), as described by Thaler and Sunstein (2009), to the dynamics of framing effects (Tversky and Kahneman, 1981), and the influence of salient

information (Bordalo et al., 2013). Such strategies are critical in unearthing and potentially guiding individual preferences toward more socially responsible investment choices.

Additionally, cognitive and behavioral practices, including meditation and sophrology, are increasingly acknowledged as vital components within this array of decision-shaping tools. These practices have been demonstrated to significantly affect decision-making processes (Hafenbrack et al., 2014; Engel et al., 2020; Shapiro et al., 2012), potentially adjusting the weight given to different choice attributes, in a manner akin to the impact of nudges and framing. The mental acuity and emotional balance cultivated by these practices can reveal intrinsic preferences, aligning them with more prosocial outcomes and serving as internalized behavioral nudges that guide economic agents toward more socially responsible investment decisions in times of financial crisis.

Our research is strategically positioned at the nexus of these cognitive influences and the practice of mindfulness, seeking to determine whether the introspective clarity engendered by meditation can function comparably to these decision-shaping strategies.

Laboratory experiments offer a controlled setting to establish causality between prosocial financial choices and crisis exposure, accounting for unobserved factors in real-life situations.

To investigate this issue, we conducted a study involving 97 participants who received a daily meditation practice for one week (referred to as the meditation treatment), which included two specific training practices: (1) a "breath meditation" lasting about 15 minutes, and (2) a secular version of the "loving-kindness meditation" (also known in Buddhist traditions as Metta), lasting about 20 minutes. These practices were compared with a control group of 91 participants who engaged in a mind-wandering treatment without meditation, consisting in the reading of two texts on the appearance of modern man in Africa, hundreds of thousands of years ago. In the subsequent phase of the study, participants were asked to make a series of portfolio choices by allocating a fixed endowment among three different assets: a pro-social asset (*green asset* thereafter), an anti-social asset (*brown asset* thereafter) and a risk-free neutral asset (cash). In the experimental instructions, the assets were designated by the letter A, B and C, respectively. The green asset color generated a positive externality on a third party, while the brown asset generated a negative externality. Specifically, each investment

unit in the green asset was linked to a donation made to a pro-environmental non-governmental organization (NGO). Such donation is known as delegated philanthropy (Bénabou and Tirole, 2010), and is widely utilized by experimental economists (Heimann et al., 2011; Eckel et al., 2017; Guenster et al., 2022). Alternatively, drawing on the work of Tatarnikova et al. (2023) and Duchêne et al. (2022), we utilized a concept of delegated misanthropy for the brown asset, akin to the delegated philanthropy employed for the green asset. Under this approach, a donation was made to an environmentally unfriendly association to represent the environmental consequences of the brown asset. Participants' investment decisions in both the green and brown assets resulted in corresponding donations made by the university. Specifically, investments in the green asset led to additional funds being transferred to a pro-environmental association focused on global reforestation efforts. On the other hand, investments in the brown asset involved a transfer to an association representing international oil and gas producers. This approach allowed for a thorough assessment of participants' decision-making and its environmental impact, as their choices directly influenced the donations made to the respective associations.

During the experiment, the green asset consistently offered a lower return than the brown asset. Both assets were perfectly correlated to prevent participants from diversifying their risk through arbitrage between the green and brown assets. As a result, for the same level of risk, participants faced a choice between an asset that generated a positive environmental impact but sacrificed some return, and a brown asset that was more profitable but had a negative externality for society. Additionally, participants had the option to invest part of their funds in a riskless neutral asset (cash asset) that had no environmental externality and yielded zero profitability. A deliberate conservative approach was taken by providing a lower level of profitability for the green asset compared to the brown asset. The purpose of this conservative design was to examine whether participants would still demonstrate a preference for the green asset under such circumstances. The rationale was that if participants showed a preference for the green asset despite its lower profitability, this would imply an even stronger inclination for environmentally-friendly investments when their profitability is equal to or higher than the brown assets. However, if the green asset were more profitable than the brown asset, it would be difficult to disentangle the preference for the green asset

from the attractiveness of higher returns. In such a scenario, participants' investment decisions might be driven by a combination of both the desire for positive environmental impact and the pursuit of financial gains. Therefore, the experimental setup was intentionally designed to explore the preference for green assets under more conservative conditions, where participants had to weigh the trade-off between environmental impact and financial returns.

Subjects were involved in a sequence of 10 periods of the asset allocation task. At the beginning of each period they had to decide about their allocation between the green, brown and neutral assets (10 times in total), after which they learned the performance from their current portfolio before making the next allocation. We implemented a specific sequence of returns for which there were five consecutive positive returns periods (periods 1-5), followed by five consecutive negative returns periods (periods 6-10). This arrangement ensured that there were five observations of asset allocations preceding the financial crisis phase and five observations during the crisis. The sequence of returns implemented in the study intentionally introduced an exogenous negative shock on the returns of both the green and brown assets during period 5. This served as a means to compare participants' asset trade-offs between a favorable context (periods 1-5) and an unfavorable context resembling a crisis scenario (periods 6-10). The study compared two treatments: (i) meditation and (ii) mind-wandering. In the meditation treatment, participants were invited to engage in 45 minutes of daily meditation for five consecutive days prior to the experiment. The meditation sessions were conducted by a professional instructor, ensuring that participants received expert guidance and instruction in their meditation practice.

We highlight two main findings. Firstly, regardless of meditation, we observed a preference for green assets over brown assets among all participants, including both meditators and non-meditators, during both quiet and crisis periods (*result 1 and result 3*). Additionally, during financial crises, both meditators and non-meditators tended to shift their investments from risky assets, whether green or brown, to cash (*result 2*). Secondly, we found that meditators showed significantly lower disinvestments from green assets compared to non-meditators during the crisis (*result 3*). This indicates that the investments made by meditators remained more stable throughout the experiment and exhibited greater resilience

during times of crisis. Finally, unlike the control group, meditators have a strong tendency to invest in the green asset rather than the brown one throughout the entire game, both before and during the crisis, showing greater stability in their green preference (*result 5*).

In summary, our findings contribute to the existing literature by highlighting the preference for green assets and the willingness of participants to accept lower returns on such assets during both quiet and crisis periods, albeit to a lesser extent during crises. To the best of our knowledge, this paper represents the first study to examine the influence of meditation on investors' choices and preferences for green versus brown assets through a controlled laboratory experiment.

The remainder of the paper is organized as follows. Section 2 describes the experimental design. Section 3 presents the results of our analyses. Section 4 discusses the results, their implications and concludes.

2. Experimental design

The experiment was conducted at the experimental economics' laboratory of the University of XXX (for blind review), in September and October 2020. The participants were recruited via ORSEE (Greiner, 2015) and randomly assigned to one of the two treatments: a mind-wandering treatment (control group), and a meditation treatment (test group)[5].

[5] Drawing from a pool of 2,300 individuals, a randomly selected cohort of 500 participants was contacted via email, offering them the opportunity to engage in an experimental study spanning five days. This experimental condition (the meditation treatment) was presented to participants without revealing specific details about the nature or content of the experiment. Therefore, the participants had no prior access to any detailed information regarding the thematic focus of the experiment. The invitation stipulated a commitment of one hour per day for the first four days, followed by an extended session of two and a half hours on the fifth day (refer to the meditation email in the Internet Appendix D for further details). To qualify for compensation, participants were required to adhere to this schedule throughout the week, with a remuneration structure of 6 euros per day for the initial four days and an unspecified amount for the final day. Payment was made at the end of the week. In a similar vein, another group of 500 participants, also selected randomly, received invitations to partake in a different experimental condition (the mind-wandering treatment). This treatment was conducted over a single session (details of which can be found in the mind-wandering email in the Internet Appendix E). This parallel recruitment strategy was designed to ensure a balanced and comprehensive engagement across the different treatments, thereby facilitating a robust exploration of the respective impacts of each experimental condition. This procedural aspect introduced an additional time commitment during the week for participants in the meditation treatment, potentially leading to a slight selection bias that we anticipated a priori. To address this, we therefore employed various econometric techniques to control for potential biases arising from this additional time requirement. All these methodologies and implications are thoroughly discussed in subsequent

2.1 Meditation

In the meditation treatment, participants engaged in 45 minutes of daily meditation over five consecutive days, guided by a certified mindfulness-based stress reduction (MBSR) instructor in a dedicated room. The sessions combined (i) breath meditation, focusing on the natural rhythm of inhalation and exhalation to cultivate mindfulness and presence, (ii) group exploratory dialogues, to discuss feelings and sensations, and (iii) a secular version of loving-kindness meditation (Metta). This latter technique, known as Metta in Buddhist traditions, involved generating feelings of goodwill and kindness towards oneself and others, enhancing participants' empathy and emotional well-being. This comprehensive approach was contrasted with a control group of 91 participants who participated in a mind-wandering treatment without meditation, to assess the distinctive effects of the meditation regimen. On the fifth day, following the final meditation session, participants proceeded to engage in the experimental tasks, which lasted approximately 120 minutes on average[6]. The meditation treatment was divided into two sessions, spanning two weeks, with participants attending five consecutive days of meditation, either in week one or in week two. The study's participant pool encompassed individuals of varying ages, although the number of participants over the age of 30 was relatively low (see the histogram of the participants' age in the Internet Appendix - Figure 4). Due to the very low number of participants over 30, we decided to focus exclusively on students to propose a robust statistical analysis.

127 participants attended one of the two meditation sessions. Of these, 16 did not complete the 5 days of meditation and therefore were not invited to the experiment. Of the remaining 111 participants, 5 could not be involved in the experiment[7]. In total, 106 participants completed the meditation treatment, 97 of which were aged 30 or less. The

sections of the document, ensuring that our analysis remains robust and accounts for any potential distortions in participant selection and behavior attributable to this aspect of the experimental design.

[6] The experiment was part of a larger project about meditation that contained several other tasks. In the current paper, we focus only on tasks related to green and brown investments in times of crisis.

[7] The experimental platform consisted of 20 cubicles, which necessitated the random selection of final participants due to space limitations. For individuals who could not be accommodated in the study, compensation was provided to cover their travel expenses as well as the five days of meditation they were unable to participate in. This approach ensured fairness and fairness for all participants, regardless of their selection for the study.

meditation expert was an external practitioner and certified MBSR instructor, to avoid any bias related to the methodological quality of the study, as mentioned by Kreplin, Farias and Brazil (2018).

In the mind-wandering control treatment, 102 participants were invited during a one-shot session to listen to a 45-minute narration involving the perusal of two documents discussing the emergence of early modern humans in Africa, dating back several hundred thousand years. This treatment was carried out with the same meditation instructor, to avoid any heterogeneity in the sound of the voice and the visual perception of the trainer by participants, after which they performed the experiment (See Internet Appendix B for links to the English-language transcripts of the mind-wandering control readings and the meditation treatment sessions, and the audio original French versions for both treatments in Internet Appendix C).

91 of them were aged 30 or under. The mind-wandering practice is commonly used in the literature to compare the impact generated by meditation with that of a simple, neutral storytelling technique, on individuals' decision making (Arch & Craske, 2006; Hafenbrack and Vohs, 2018; Long & Christian, 2015; Mrazek et al., 2012).

After completing the five rounds of meditation in the meditation treatment, participants immediately proceeded to engage in the experiment. Similarly, for participants in the control treatment, they moved on to the experiment immediately after listening to the narration.

2.2 Asset allocation task

In the asset allocation task participants were provided with an endowment of 18 euros in cash, which they had to allocate among three different assets: (i) a risky green asset, (ii) a risky brown asset, and (iii) a risk-free neutral asset (cash), which had a zero return. Each asset was characterized by three attributes: return, risk, and environmental externality. The specifics of these attributes are detailed in Table 1. They were known to the participants through detailed instructions (see Internet Appendix B). The return of the green asset was consistently lower than that of the brown asset by two points in every possible state of nature.

This choice aligns with the findings of previous empirical literature[8] (Borgers et al., 2015) that suggests a systematic difference in returns between green and brown assets. The two risky assets used in the study were perfectly correlated, to avoid any possibility of reducing portfolio risk by means of diversification between risky assets, meaning that their fluctuations occurred simultaneously, resulting in either increasing or decreasing returns at the same time.

In addition to considering risk and return, the study placed significant emphasis on the assets' externality as a main characteristic of interest. The neutral asset was devoid of any externality, while the green asset was associated with a positive externality, and the brown asset with a negative externality. To highlight the positive externality of the green asset, the experimenter made a commitment to donate 50% of the average amount invested in the green asset to a pro-environmental non-governmental organization (NGO) focused on promoting global reforestation[9]. This approach aligns with similar methods employed in previous studies, such as Duchêne et al. (2022) and Tatarnikova et al. (2023). Similarly, for the brown asset, 50% of the average amount invested was donated by the experimenter to an international association of oil and gas producers[10]. The organizations were carefully selected so that participants could easily and distinctly identify them as "green" (environmentally friendly) or "brown" (associated with fossil fuels). It is important to note that these donations made by the experimenter did not impact participants' earnings. Finally the experimenters have made a commitment to the participants to transfer the amounts to be paid to the associations, to make the donation as credible as possible. This approach is commonly

[8] Some papers (Lins et al., 2017; Xiong, 2021) reported that green assets are more profitable than brown assets. Despite that we decided to adopt a very conservative approach by providing a salient lower profitability for the green asset. If our hypotheses are supported with such characteristics for green, they should be supported *a fortiori* if the green asset is equally or more profitable than the brown asset.

[9] This entity is a social enterprise that operates worldwide and is committed (alongside other projects) to encouraging sustainable reforestation efforts worldwide through (among various other initiatives) crowdfunding mechanisms. One of its main missions is to protect, rehabilitate and expand forest areas in various parts of the world. Further details, including the name of the association, a link to its website and the total amount of funds transferred, can be provided on request. For the information of the reviewers, the association in question is Reforest'Action, accessible at the following address: [https://www.reforestaction.com/en]. Details were given to participants during the experiment (see Internet Appendix B).

[10] This is an international consortium of oil and gas producers. This association advocates for the utilization of fossil fuels, including shale gas. Further details, including the association's name, its website link, and the total amount of funds transferred, are available upon request. For the reviewers' reference, the specific association involved is the International Association of Oil & Gas Producers, which can be accessed at [https://www.iogp.org/].

referred to as "delegated philanthropy" for the green assets and "delegated misanthropy" for the brown assets, as discussed in Duchêne et al. (2022).

The allocation task was conducted over ten consecutive periods. Participants first read the instructions and answered comprehension questions. They were then given 60 seconds to make their initial asset allocation decision for the first period. If they exceeded the 60-second time limit, the program automatically assigned a default allocation: 35% to the green asset, 35% to the brown asset, and 30% to the cash asset. We have deliberately set a time limit so that the experiment has a maximum duration. In each subsequent period, participants were presented with updated returns for each asset and a summary table that provided information about the outcomes of the previous periods. This included the percentage allocated to each asset, the returns of each asset (both as a percentage and in euros), the total value of the portfolio, and the amount donated to each charity. At the bottom of the decision screen, participants had the option to modify their asset allocation or choose to keep the same allocation as in the previous period. They had 60 seconds to make their decision. If they exceeded the time limit, the program retained the same allocations as the previous period. At the end of period 10, participants were provided with a summary table that displayed the overall results achieved across all periods.

Participants were explicitly informed that the risky assets in the investment game were subject to market shocks, mirroring real-world assets. This information was provided to participants to ensure they were aware of the potential risks involved in their investment decisions. By notifying participants about the possibility of market shocks, the study aimed to create a realistic and engaging environment that reflected the uncertainties of real financial markets. To examine their reactions to a downward price shock on both assets, we generated multiple paths for the assets' prices based on their characteristics. We specifically selected a pattern in which the prices experienced successive rises over the first four periods, followed by price declines over the next six periods (reported in Table 2). This particular pattern allowed us to create a situation in which participants had to make investment decisions during both quiet periods (from the start of period 1 to the start of period 5) and times of crisis (from the start of period 6 to the start of period 10). By observing participants' investment choices

and behavior during these different periods, we could analyze their reactions to the downward price shock and assess the impact of meditation on their decision-making process.

Table 1: Parametric setting in the experiment

State	1	2	3	4	5	6	7	8	μ	Pearson **σ**
Probability	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8		
Green asset	30%	20%	10%	5%	-5%	-10%	-20%	-25%	0.625%	0.173
Brown asset	32%	22%	12%	7%	-3%	-8%	-18%	-23%	2.625%	0.173

Notes: State identification numbers were not provided in the experiment, μ is the average return and **σ** the Pearson standard deviation.

Table 2: Realized returns and realized prices by asset type (green vs brown) in each period

Period	Realized return_green	Realized return_brown	Realized price_green	Realized price_brown
1	5%	7%	105.00	107.00
2	5%	7%	110.25	114.49
3	5%	7%	115.76	122.50
4	10%	12%	127.34	137.20
5	-10%	-8%	114.60	126.23
6	-5%	-3%	108.87	122.44
7	-20%	-18%	87.10	100.40
8	-20%	-18%	69.68	82.33
9	-25%	-23%	52.26	63.39
10	-10%	-8%	47.03	58.32

Note: The starting price of the two assets is 100. In total, the subject allocates his endowment 10 times over the course of the market (at the start of each period). For each period and for each asset, subjects observe a single realized return and a single realized price.

2.3 Complementary tasks

The study also included four peripheral tasks aimed at collecting explanatory data, in line with the mindfulness literature previously discussed. These tasks included: (i) the Mindful Attention Awareness Scale (MAAS): Participants completed a questionnaire consisting of 15 questions assessing their level of attention, mindfulness-related behaviors, and attitudes. Responses were rated on a scale of 1 to 6 (Brown and Ryan, 2003); (ii) risk tolerance assessed using the Gneezy and Potters (1997) portfolio choice task, for which participants had to allocate 10 euros between a safe and a risky asset[11]; (iii) Social Value Orientation (SVO, Murphy et al., 2011) to assess subjects' pro-sociality; and (iv) a socio-demographic questionnaire. The screenshots of the various tasks in French and translations in English are available in the Online Supplementary Material. The average duration of the experiment was 50 minutes.

Subjects were instructed that their final payment for the experiment depended on a random choice of one of the tasks, either the core asset allocation task, the SVO task or the risk tolerance task. They were notified that the MAAS and the socio-demographic questionnaire would not be paid. The average (maximum) payoff for participants was 19 euros (49 euros), without show-up fee. In regard to the duration of the experiment which was less than one hour, we provided rather high monetary incentives compared to the usual standard payoff[12]. In addition, we paid a fixed participation rate of 6 euros per show up for every trip to the university to compensate for the cost of travel and time spent in transit. This corresponds to a flat payoff of 30 (6) euros for participation in five (one) sessions in the meditation (mind-wandering) treatment. The experimental design has been approved by the Ethics Committee of the University of xxx (for blind review).

[11] The risky asset yields 3 times the amount invested if it succeeds and 0 if it fails. Success and failure have the same probability of occurring: 1 in 2. The final payment for this task is either equal to *10 - (amount invested multiplied by 3)* in the event of success, or equal to *10 - amount invested* in the event of failure.

[12] The average monthly income of a French student is 968 euros (OVE, 2016) which represents an hourly gain of 6.90 euros.

3. Results

We first provide some descriptive statistics (Sub-section 3.1) before testing our hypotheses. In Sub-section 3.2, we discuss H1 and H2 (intrinsic preference for green assets) and in Sub-section 3.3 we discuss H3-H5.

3.1.1 Descriptive statistics

Table 3 provides descriptive statistics for participants in both treatments. 188 participants were involved in the experiment (97 in Meditation and 91 in Control). In the meditation group the *SVO_score* (Social Value Orientation) was significantly higher than in the mind-wandering group (Mann-Whitney U tests, z = -3.184, $p < 0.005$), which agrees with the literature about the pro-sociality effect of meditation, even in the short run (Condon et al., 2013, Luberto et al., 2018, Dagar, Pandey and Navare, 2022). We also observe that in the core task, meditating subjects take significantly more time before deciding about their investments than the control subjects (average time for the 10 periods: 199.36 vs 142.37 seconds, Mann-Whitney U tests, z = -5.856, $p < 0.005$), which is in line with existing literature showing that meditation affects reaction time and improves attention levels (Chambers et al., 2008; Van den Hurk et al., 2010). While Tang et al. (2007) found that short-term meditation, involving only 20 minutes per day over a five-day period, can significantly influence various factors such as attention, anxiety, depression, anger, fatigue, cortisol levels, and immune reactivity, our study indicates that a comparable short-term meditation regimen did not alter the level of mindfulness as measured by the MAAS, nor the risk tolerance as gauged by the Gneezy-Potters task, in our student participants.

To sum up these first statistics on the control tasks, our meditation had mainly a noticeable impact on altruism (SVO) and decision-making duration, thus mainly affecting prosocial behavior and impulsivity.

The randomly distributed samples were well balanced, with age, gender and field of study not differing significantly between the 2 groups.[13] Consequently, the data do not present any selection bias on the measured socio-demographic variables.

3.1.2 Robustness and comments on control tasks

The treatment effect is robust on SVO (altruism) and decision time when we regress these two variables and control for risk levels, age, gender, crisis, MASS, periods, and fields of study[14]. In addition, to mitigate any potential influence of selection bias in our study, we systematically apply as a complementary econometric method to regression, the framework of the Average Treatment Effect (ATE) for estimating the average causal impact of meditation, combined with the Augmented Inverse Probability Weighting (AIPW) method. AIPW is a statistical technique specifically designed to enhance the accuracy of causal inference in observational studies by addressing potential selection bias. This methodology incorporates two distinct mechanisms to mitigate selection bias: propensity score adjustment and outcome modeling, thereby providing increased robustness when at least one of these models is correctly specified. The average treatment estimations are significant ($p < 0.005$) for both altruism and decision time and suggest the absence of selection bias in the sample (see Table 10, Panel B in the Internet Appendix for a description and details).

Concerning the MASS and the absence of difference between the two treatments, it is important to note that it assesses solely the aspect of mindfulness related to attention and present-moment awareness. It does not encompass other facets of mindfulness such as altruism or impulsivity[15], which can also be influenced by meditative practices. Indeed, in our study, the experiment was meticulously designed to encompass a multifaceted meditative

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[13] To control for these differences in time and altruism in particular, and in general regarding risk or MAAS, all these variables are added as control variables in the regressions.

[14] For more information on decision time and SVO, see the regressions of these variables in the Internet Appendix Table 9 and 9-B.
Average time spent for a period is 19.94 and 14.24 seconds for meditation and control group, respectively (Mann-Whitney U tests, $z = -18.564$, $p < 0.005$). The meditators took significantly more time per period (except for periods 1 and 3). Very few subjects reached the maximum time allocated per period (60 seconds), especially in period 1 (see Table 9-A in the Internet Appendix for more details).

[15] In our experimental framework, altruism is assessed through the Social Value Orientation SVO_score, while impulsivity is quantified via the average decision time in the investment task.

experience, tailored to enhance mindfulness through two main core practices. First, breath meditation served as the foundational framework, incorporating both Body Scan and Sitting Meditation as integral, interconnected components. The Body Scan Meditation, focusing on heightened awareness of bodily sensations, fostered a deep attunement to the self, complementing the breath-focused aspects of the practice. Simultaneously, Sitting Meditation was conducted with a primary emphasis on the breath, while also encompassing an awareness of bodily sensations, thoughts, sounds, and emotions. By blending the focused awareness of body scan with the breath-centred mindfulness of sitting meditation, the regimen effectively anchored participants in the present moment, contributing significantly to reducing impulsivity and enhancing overall mindfulness.

Secondly, the practice of Loving-kindness Meditation, or Metta, was carefully interwoven into our program. This practice is a profound exercise in cultivating compassion, beginning with oneself and gradually extending outward to others. Participants are guided through a series of positive affirmation or intention statements, expressing heartfelt wishes for well-being, happiness, and freedom from suffering. By repeating these intentions, individuals nurture a spirit of generosity and unconditional kindness, not only towards themselves and their loved ones, but also towards neutral individuals, and eventually, towards those with whom they may have conflicts. This expansive practice is designed to dissolve feelings of animosity and isolation, fostering a sense of interconnectedness and universal love that is essential for holistic well-being. These two techniques collectively aimed to develop a comprehensive mindfulness skill set, as posited in our introductory framework. The unidimensional aspect of the MASS could explain the lack of variance observed in its scores between the two groups, the varied effects of meditation in this experiment having been observed on several dimensions other than that assessed by the MASS.[16]

Table 3 – Sample Characteristics by treatment

	Treatment (Mindfulness)	Control	z#	p#

[16] Internet Appendix B contains a detailed transcript of a meditation session in which the various meditative techniques described are applied.

		(Mind-wandering)		
SVO_score	0.45	0.34	**-3.184**	**0.001*** **
	(0.249)	*(0.217)*		
Risk-tolerance (out of 10)	5.73	5.31	-0.906	0.366
	(2.571)	*(2.636)*		
MAAS_score	53.77	54.48	0.519	0.605
	(10.67)	*(11.897)*		
Decision_time (seconds)[17]	199.36	142.37	**-5.856**	**0.000*** **
Sd/min/max	*(70.277)/68/377*	*(51.054)/54/299*		
Field of study (economics or management/ scientific / literature or arts / other) (%)	51.55/26.8/4.12/ 17.53	32.97/38.46/5.49 /23.08	1.915	0.056
Female (%)	49.48	60.44	-1.504	0.132
Age	22.45	22.87	1.461	0.144
Sd/min/max	*(3.075)/18/30*	*(2.688)/18/29*		
Observations	97	91		

Notes: The sample includes 188 student subjects (97 in treatment and 91 in control). Table 3 reports group means. Standard deviation in parentheses. The variables *Decision_time*, *SVO_score*, *Risk_tolerance* and *MAAS_score* are continuous variables that represent the time spent in the asset allocation task, the SVO score, the risk tolerance score and the MAAS score respectively. The continuous variable Age is the age of the subject. # The z-statistics and the p-values of two-sided Mann-Whitney-U tests are shown. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$.

3.2 Testing standard hypotheses regardless of meditation

Our first focus is to examine whether participants display a preference for green assets, regardless of meditation practice, despite the lower returns associated with them (H1:

[17] During the first 5 periods (in the last 5 periods), the meditation group spent an average of 23.34 (16.53) seconds per period; SD = 13.93 (11.12) and the control group spent an average of 17.91 (10.56) seconds per period.; SD =13.07 (8.50).

Attraction for green). Additionally, we aim to distinguish between quiet periods and periods of negative shock to determine whether this preference for green assets remains resilient during times of financial crisis. Our second objective is to investigate whether participants exhibit increased risk aversion during periods of crisis, independent of the type of risky assets involved, leading them to allocate more funds to cash holdings compared to quiet periods (H2: Reluctance to take risks in crisis). By addressing these hypotheses, we aim to shed light on participants' investment behaviors in relation to green assets and risk-taking tendencies during different market conditions.

Figure 1 illustrates the average allocation in green, brown, and neutral assets for all combined participants in each period. Table 4 presents the average allocation in the two risky assets for each period, along with the difference in proportions between the green and brown assets, termed as *Green Preference* (for testing H1, Attraction for green). Lastly, Table 5 outlines the average allocation in cash, examining whether participants invest more in non-risky assets during crisis periods (H2, Reluctance to take risks in crisis).

Figure 1: Average proportion invested (%) in each asset over time (all participants)

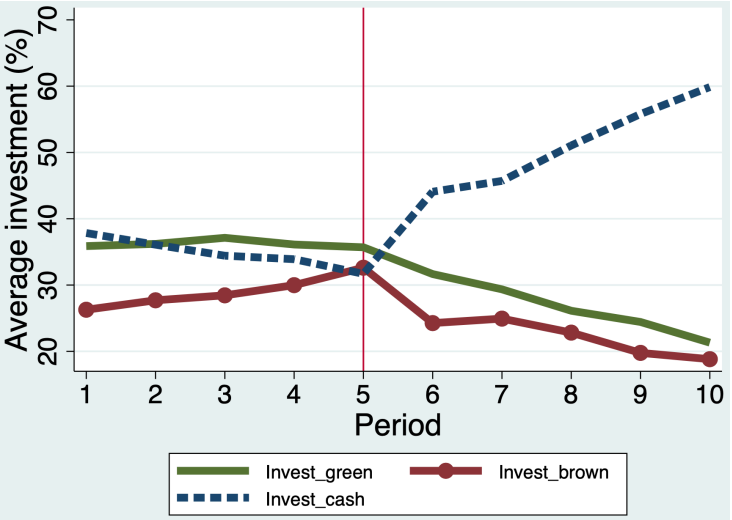


Table 4. Average proportion invested in green and brown assets (all participants)

Period	Green (%)	Brown(%)	Green Preference diff_green_brown(%)	z[&]	p[&]
Before crisis					
1	35.88	26.28	9.60	5.320	0.000***
2	36.21	27.70	8.51	3.860	0.000***
3	37.13	28.45	8.68	3.168	0.001***
4	36.11	29.99	6.13	2.607	0.009**
5	35.69	32.61	3.08	1.445	0.148
During crisis					
6	31.66	24.26	7.39	3.832	0.000***
7	29.36	24.94	4.42	2.064	0.039*
8	26.12	22.82	3.30	2.874	0.004***
9	24.43	19.77	4.66	3.325	0.001***
10	21.31	18.82	2.49	2.696	0.007**

Notes: Table 4 reports the average proportion invested in green and brown assets by period. The columns Green and Brown are the *proportions* invested in the green asset and the brown asset, respectively. diff_invest(green-brown) represents the difference between the proportion invested in the green asset and that invested in the brown asset. [&]The z-statistics and the p-values refer to Wilcoxon matched-pairs signed-rank tests to test whether the variable diss_invest(green-brown) is significantly different from zero. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$.

Based on the observations in Figure 1, we note a significant trend of participants investing a higher proportion in the green asset, despite its lower profitability compared to the brown asset. This pattern is evident in most periods, with statistically significant differences between the proportions invested in green and brown assets (Wilcoxon signed-rank tests, p <

0.05), except for period 5[18]. These findings indicate that participants consistently show a preference for the green asset throughout the experiment, allocating a higher proportion to it compared to the brown asset, despite the lower returns associated with the green asset.

The observed result provides compelling evidence for the existence of an intrinsic preference for green assets, confirming H1 and aligning with the initial findings of Riedl and Smeets (2017). This indicates that investors are willing to accept lower financial performance in order to align their investments with their moral values related to environmental concerns. An important and noteworthy finding is that this preference for green assets persists even during times of crisis. The fact that participants continue to prioritize green assets and invest in them, despite the market shocks, suggests that this preference is robust and resilient. It demonstrates the strength of individuals' commitment to sustainable investments and their willingness to maintain their environmental values even in challenging market conditions.

Result 1: Participants, whether meditators or not, invest significantly more in the less profitable green asset than in the brown asset, both in quiet and in crisis periods.

In Figure 1, it is clear that participants exhibit a significant disinvestment from risky assets (green and brown) during crisis periods (periods 6 to 10) to allocate a larger proportion of their investments to cash. This finding confirms H2 and aligns with previous research that has demonstrated a decrease in risk-taking behavior during financial market crashes (Cohn et al., 2015; Guiso et al., 2018; Weber et al., 2013). The average proportion invested in cash significantly increased from an average of 34.79% before the crisis to an average of 51.30% during the crisis (Mann-Whitney U test, $z = -11.140$, $p < 0.005$)[19]. This shift towards cash investments during periods of crisis reflects participants' inclination to reduce their exposure to risk and seek safer, more stable investment options.

[18] Further details about statistical analysis for each period can be found in Table 4, which provides insights into the specific periods where the differences in proportions invested in green and brown assets are statistically significant.

[19] The average investment percentages in cash prior to the crisis are 37.46% and 32.27% for the Meditation and Control groups, respectively. Meanwhile, during the crisis, the average investment percentages for the Meditation and Control groups are 46.86% and 56.01%, respectively. (See Panel E of Figure 2).

Table 5. Average proportion of investment in cash by period (all participants).

Before crisis		*During crisis*	
Period	Cash (%) - All groups	Period	Cash (%) - All groups
1	37.85	6	44.08
2	36.09	7	45.71
3	34.43	8	51.05
4	33.90	9	55.80
5	31.69	10	59.86
Average before crisis	**34.79**	**Average during crisis**	**51.30**
Mann-Whitney U tests, z= -11.140, p = 0.000* **			

Notes: Table 5 reports the average proportion invested in cash by period for both groups (Meditation and Control). The z-statistics and the p-values refer to the two-sided Mann-Whitney-U tests to test whether the average proportion invested in cash before the crisis is significantly different from the average proportion invested in cash during the crisis. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$.

Result 2: In times of crisis, participants lower their allocation to risky assets, whether green or brown, to increase their cash holdings.

3.3 Testing hypotheses related to the effect of meditation

To assess the impact of meditation on investment behavior, we examine whether meditators demonstrate a higher inclination to invest in the green asset compared to the brown asset during quiet periods (H3). This hypothesis is based on previous research suggesting that meditation promotes prosociality (Condon et al., 2013, Luberto et al., 2018, Dagar, Pandey and Navare, 2022). In Figure 2, panels A and B illustrate the average proportion invested in green, brown, and neutral assets for both the meditation treatment and the control treatment, across each period. Panels C and D depict the average proportions invested in the two risky assets before and during the crisis. There is no significant difference in the percentage invested in green assets before the crisis between the meditation treatment and the control treatment (Mann-Whitney U tests, $z = -0.637$, $p > 0.05$; see Figure 2 - Panel

C). This suggests that the meditation treatment did not have a noticeable impact on the investment behavior specifically towards green assets during quiet periods. Thus, as the SVO score was significantly higher in the meditation treatment, this implies that the increased altruism resulting from meditation did not translate into a greater preference for investing in the green asset.

Result 3: Meditators do not invest more than non-meditators in green assets during quiet times.

In line with the literature stating that meditation reduces stress in an aversive event (Levenson et al., 2012), improves emotional regulation (Tang et al., 2007, 2009, 2010) and prosociality (Condon et al., 2013), we next investigate whether meditation can lead to a reduction in disinvestment from green assets during a stock market crash (H4).

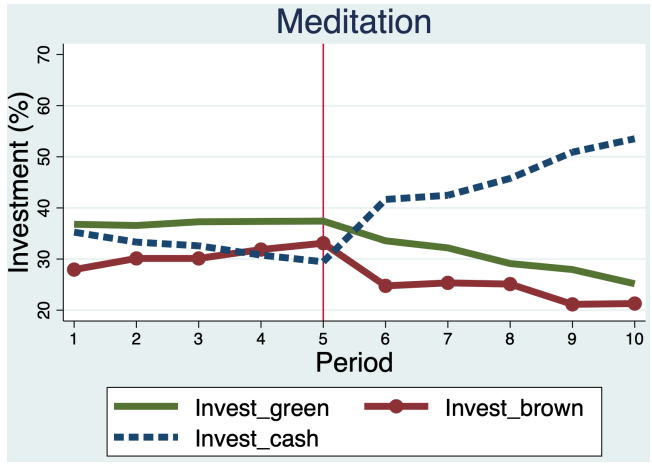
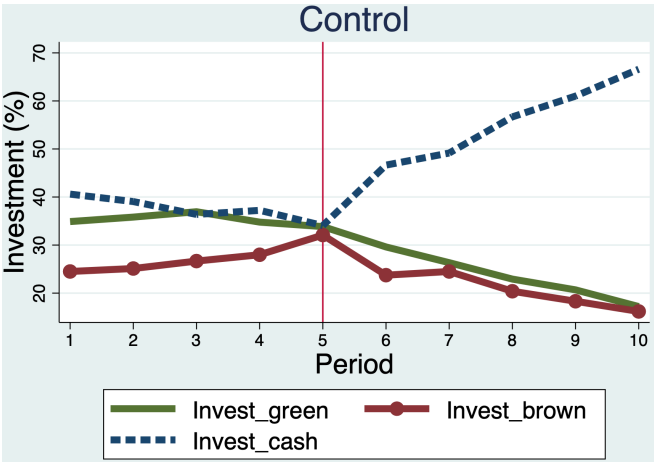
Examining panels C and D of Figure 2, it can be observed that the disinvestment in the green asset is substantially lower in the meditation treatment (7.5% = 37.09% - 29.59%) compared to the control treatment (11.9% = 35.25% - 23.35%). While the difference in the proportions invested in green assets between the two treatments is not significant before the crisis, it becomes significant during the crisis (Mann-Whitney U tests, $z = -2.269$, $p < 0.05$). These results confirm H4 and support that meditation has a mitigating effect, reducing the disinvestment in green assets during times of market turmoil. On the other side, in the control treatment, the extra divestment of green assets is reflected in an additional investment in cash. As a result, if the difference in cash proportions between the two treatments is not different before the crisis (Mann-Whitney U tests, $z = 1.575$, $p = 0.115$) , it becomes significantly different during the crisis (Mann-Whitney U tests, $z = 2.581$, $p = 0.009$), as participants in the control treatment invest more in non-risky assets.

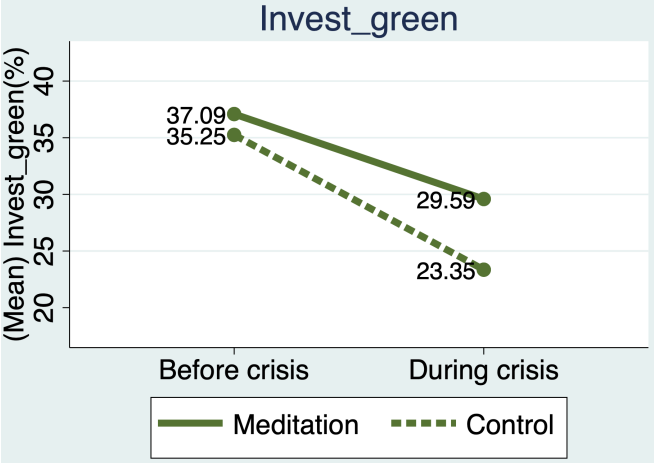
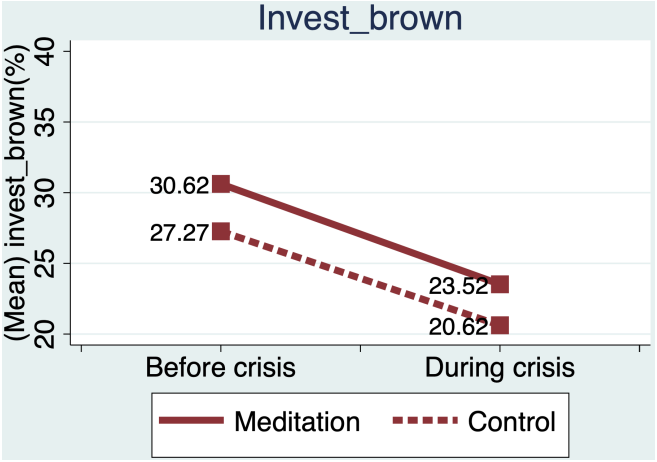
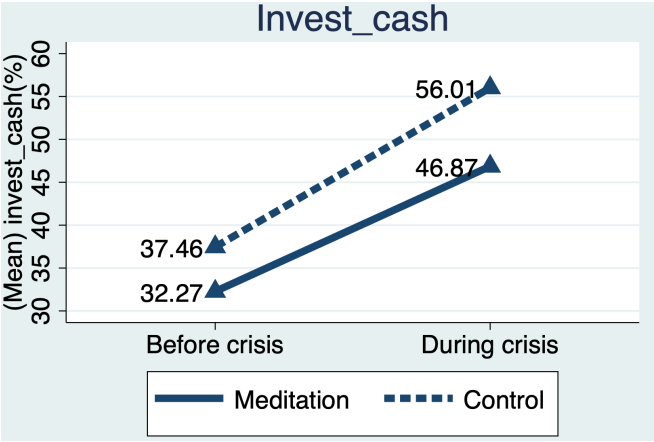
The findings suggest that participants in the meditation treatment exhibit greater stability in their investment decisions and are less likely to disinvest from green assets during a stock market crash, compared to participants in the control treatment. This suggests that

meditation may enhance resilience and emotional regulation, leading to more consistent and steadfast investment choices even in challenging market conditions.

Result 4: Meditators divest less than non-meditators from green assets during a negative return shock (during crisis).

Figure 2: Average proportion invested (%) by asset type and by treatment in each period

Panel A: Meditation group	Panel B: Control group
	

Panel C - Investment in the green asset	Panel D - Investment in the brown asset
 Difference in the proportions invested in the green between Meditation and Control group: Before crisis: z = -0.637, p = 0.524 During crisis: z = -2.269, p = 0.023*	 Difference in the proportions invested in the brown between Meditation and Control group: Before crisis: z = -0.992, p = 0.321 During crisis: z = -1.343, p = 0.179
Panel E - Investment in the cash asset	
 Difference in the proportions invested in the cash between Meditation and Control group: Before crisis: z =1.575, p = 0.115 During crisis: z = 2.581, p = 0.009**	

Notes: Panels A and B: Average proportion invested in the green, brown and neutral assets by treatment (Mindfulness versus Mind-Wandering), for each period. Panel C: Average proportion invested in the green asset before and during the crisis by treatment. Panel D: Average proportion invested in the brown asset before and during the crisis by treatment. Panel E: Average proportion invested in the cash asset before and during the crisis by treatment. In Panels C, D and E, all pre-crisis periods are merged into a "Before crisis" sequence and all crisis periods are merged into a "During crisis" sequence. The z-statistics and the p-values of two-sided Mann-Whitney-U tests are shown. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$.

Finally, we would further extend our analysis to test whether meditators have a stable investment preference for green assets over brown assets (H5) over time, by comparing the before-crisis period with the post-crisis period. Table 6 provides a comprehensive analysis of the average proportion invested in the two risky assets (green and brown), as well as the green investment preference (i.e, the difference between the proportion invested in the green asset and that invested in the brown asset), before and during the crisis, for both the meditation and control treatments. The results reveal that the preference for green assets remains remarkably stable in the meditation treatment, with a slight decrease from 6.46 points before the crisis to 6.07 points during the crisis. This difference is not statistically significant (Wilcoxon signed-rank test, $z = -0.304$, $p > 0.05$). In contrast, the control treatment experiences a substantial decline in the preference for green assets, dropping from 7.98 points before the crisis to 2.73 points during the crisis. This decline is highly significant (Wilcoxon signed-rank test, $z = 2.293$, $p < 0.05$). As previously discussed, the control group's decline in green asset investment is largely compensated by an increase in cash allocation, which rises from 37.47% before the crisis to 56.02% during the crisis. This shift indicates a risk-averse behavior in the control group, with participants preferring to hold cash instead of investing in risky assets.

Table 6: Average proportion of investment by asset (Green vs Brown) and by treatment

Meditation group	Green (%)	Brown (%)	Green Inv. Preference
Before-crisis	37.09	30.63	6.46
During-crisis	29.60	23.53	6.07

H0: before crisis (%) = during crisis (%)	p = 0.763 (z = -0.304)

Control group	Green (%)	Brown (%)	Green Inv. Preference
Before-crisis	35.26	27.27	7.98
During-crisis	23.35	20.63	2.73
H0: before crisis (%) = during crisis (%)			p = 0.021*(z = 2.293)

Notes: Table 6 reports the average proportion invested before and during crisis, by treatment. Green and Brown are the *proportions* invested in the green asset and the brown asset, respectively. Green preference is the difference between the proportion invested in the green asset and that invested in the brown asset. The z-statistics and the p-values of Wilcoxon matched-pairs signed-rank tests are shown. + p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.005.

Result 5: In contrast to the control group, meditators consistently exhibit a strong inclination towards investing in the green asset as opposed to the brown asset throughout all periods, both prior to and during the crisis.

3.4 Multivariate analysis of the effect of meditation

The panel data analysis in Table 7 utilizes a random effects regression model. Additionally, to address potential concerns related to censored data, a random effects tobit regression was conducted (Supplementary tables (Table 7A), to assess the robustness of the findings. The following model is estimated based on the collected panel data:

$$Invest_{t,i} = \alpha + \beta_1 Crisis_t + \beta_2 Treatment + \beta_3 Crisis_t \times Treatment + \beta_4 X_i + \epsilon_i$$

The dependent variable $Invest_{t,i}$ represents the percentage of the portfolio invested in the risky asset (green or brown) at the start of period *t by* subject *i*. $Crisis_t$ is a dummy variable that identifies crisis periods: it takes value 0 for before-crisis periods and 1 for crisis periods. *Treatment is* a dummy variable equal to 0 for "Mind-wandering" and 1 for

"Meditation". X_i is a vector of individual-level characteristics (*SVO_score, Risk-tolerance*, *MAAS_score*, *Female*, *Age*, *Study and Decision_time*). *SVO_score, Risk-tolerance, MAAS_score and Decision_time* are continuous variables which respectively represent the SVO score, the risk score, the MAAS score and the time spent in the asset allocation task respectively. The *Female* variable is equal to 1 for female and 0 for male. The continuous variable *Age* is the age of the participant (min Age = 18 and max Age = 30). Finally, the *Study* variable is a discrete variable that represents the study theme of the participants (=1 for literature or arts, =2 for economics or management, =3 for scientific, =4 for others). Cluster-robust standard errors at the participant level are computed to account for correlation between observations within cluster.

Table 7: Investment in green and brown assets.

	Green (1)	**Brown (2)**	**Cash (3)**	**Green (4)**	**Brown (5)**	**Cash (6)**
Crisis	-11.90***	-6.648***	18.55***	-11.89***	-7.059***	18.94***
	(1.598)	(1.741)	(2.586)	(1.632)	(1.708)	(2.565)
Treatment	1.835	3.355	-5.190+	0.741	1.857	-2.588
	(2.617)	(2.869)	(2.913)	(2.489)	(2.792)	(2.816)
Crisis Treatment	4.411*	-0.453	-3.958	4.410*	-0.422	-3.987
	(2.126)	(2.520)	(3.586)	(2.131)	(2.520)	(3.591)
SVO_score				10.35*	-2.477	-7.868
				(4.843)	(5.103)	(5.269)
Risk_tolerance				1.781***	1.493*	-3.274***
				(0.608)	(0.617)	(0.675)
MAAS_score				-0.0593	0.00375	0.0555
				(0.120)	(0.114)	(0.136)
Female				3.763	-3.735	-0.0278
				(2.420)	(2.504)	(3.095)

Age				0.457	0.230	-0.687
				(0.336)	(0.379)	(0.471)
2.study				-3.763	11.65+	-7.878
				(8.059)	(6.465)	(6.035)
3.study				-4.362	5.373	-1.007
				(8.071)	(6.488)	(6.036)
4.study				0.0145	7.607	-7.618
				(7.990)	(6.430)	(6.352)
Decision_time				0.00156	-0.0558	0.0524
				(0.0328)	(0.0356)	(0.0445)
_cons	35.26***	27.27***	37.47***	36.77***	22.05***	41.17***
	(1.681)	(1.961)	(2.171)	(7.978)	(6.151)	(5.863)
N	1880	1880	1880	1880	1880	1880
R-squ - overall	0.056	0.027	0.097	0.110	0.113	0.238
Control variables	No	No	No	Yes	Yes	Yes

Notes: Table 7 presents a random effect panel regression with cluster-robust standard errors at the participant level (for correlation between observations within cluster). We have selected only subjects who are 30 years of age or younger.

In columns (1 and 4), (2 and 5) and (3 and 6) the dependent variable is the percentage invested by participants in the green_asset, brown_asset and cash_asset, respectively.

Independent variables are the binary variables, Crisis (= to 1 for crisis periods (periods 5 to 10)), Treatment (= to 1 for meditation group). The interaction variable Crisis × Treatment captures the post-crisis effect of the treated group. The control variables SVO_score, Risk_tolerance, MAAS_score and Decision_time, are continuous variables and centered that represent the SVO score, the risk score, the MAAS score respectively and the time spent in the asset allocation task. The continuous variable Age is the age of the subject. Study represents the field of study (=1 for literature or arts, =2 for economics or management, =3 for scientific, =4 for others). Robust-Cluster Standard errors in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$.

In Table 7, the results from the four specifications indicate that, in quiet times, in general, meditators do not exhibit higher investments in green assets compared to

non-meditators (Table 7, model (1): coeff(Treatment) = 1.835, $p > 0.05$), which contradicts H3 that suggests a higher preference for green assets among meditators. These findings remain consistent even after controlling for demographic variables (gender, age, study field), SVO_score, Risk_tolerance, Maas_score, and Decision_time (Table 7, model (4): coeff(Treatment) = 0.741, $p > 0.05$).

Furthermore, the results demonstrate that periods of crisis have a significantly negative impact on investments in risky assets. Both investments in green and brown assets experience a substantial decrease during crises (Table 7, models (1) & (2): coeff(Crisis) = -11.90 and -6.648, $p < 0.005$), with a preference for investing in the safer cash asset (Table 7, model (3): coeff(Crisis) = 18.55 , $p < 0.005$). These findings persist even after controlling for demographic variables, SVO_score, Risk_tolerance, Maas_score, and Decision_time (Table 7, models (4) & (5): coeff(Crisis) = -11.89 and -7.059, $p<0.005$) and (Table 7, model (6): coeff(Crisis) = 18.94, $p<0.005$). The previous observations align with H2, indicating a reluctance to take risks during crisis periods.

However, there is a significant and strong mitigating effect of meditation, supporting H4 that suggests the mitigating effect of meditation during challenging times. Table 7 demonstrates that the meditation group exhibits lower disinvestment in green assets during crises compared to the control group (Table 7, model (1): coeff(Crisis × Treatment) = 4.411, $p < 0.05$). These results remain significant even after considering demographic controls, SVO_score, Risk_tolerance, Maas_score, and Decision_time (Table 7, model (4): coeff(Crisis × Treatment) = 4.410, $p < 0.05$)[20]. However, no significant difference is observed in investments in the brown and cash asset between the two treatment groups[21].

[20] As a robustness check, we conducted a Tobit regression in Table 7-C as well as random effect panel regressions using various filters:(i) only subjects who are 26 years of age or younger -Table 7-D, (ii) only subjects who are 24 years of age or younger Table 7-E, (iii) only subjects who are 23 years of age or younger -Table 7-F and (iv) only subjects who are 30 years of age or younger, (v) and we ruled out the two subjects who did not change the proportion of investment during the whole market (subject 32 and 180) Table 7-G. With all the filters that were proposed, the coefficients of the interaction between Crisis and Treatment remain positive and significant at the 5% level. Tables 7-A to 7-G can be found in the Supplementary Tables document.

The statistical significance of the results presented in Table 7 persists at the 5% level, even if we exclude the observations in which the subjects reached the time limit imposed. The imposition of a time constraint (two minutes per period) was intended to mitigate the potential lengthening of the experimental procedure. Of the 97 subjects in the treatment group, 14 subjects exceeded the time limit once, and 2 subjects twice. Conversely, in the control group, only 5 subjects out of 91 reached the time limit during a single period out of 10. Table 7-H in the Supplementary Tables document.

[21] In line with the observed influences of our intervention on *SVO_score* and *Decision_time*, we conducted a rigorous supplementary evaluation to ascertain the non-existence of selection bias within our study, thereby ensuring that the

Table 7 provides complementary insights that participants with a high Risk score invest significantly more in both the green and brown assets (Table 7, model (4): coeff(Risk_tolerance) = 1.781, $p < 0.005$ and model (5): 1.493, $p < 0.05$). However, they invest significantly less in cash assets (Table 7, model (6): coeff(Risk_tolerance) = -3.274, $p < 0.005$). In relation to H5, the findings suggest that the stability of preference for the green asset in the meditation treatment is primarily driven by a significantly lower disinvestment in the green asset compared to the control treatment, while disinvestment in the brown asset is similar between the two treatments (Table 7, model (2): coeff(Crisis × Treatment) = -0.453, $p > 0.05$ and model (5): -0.422, $p > 0.05$).[22]

To further investigate H5, Figure 3 displays the Green preference (i.e., Invest_green – Invest_brown) for both treatment groups. Additionally, in Table 8 (Internet Appendix A), the Green preference is regressed. Figure 3 illustrates that the significant disparity, between investments in green and brown assets, that existed before the crisis in the control group, diminishes during the crisis (Table 8, model (2): coeff(Crisis) = -5.255, representing only the control group in our sample, $p < 0.05$). These results hold true even after incorporating demographic controls (Table 8, model (4): coeff(Crisis) = -4.317, $p < 0.05$).

In contrast, for the meditation group, the Green preference remains relatively stable during the crisis (Table 8, model (1): coeff(Crisis) = -0.392, meditation group only, $p > 0.05$), indicating that meditators' inherent preference for green assets is more resilient during challenging times (see Table 8 in Internet Appendix A for more details). This resilience could contribute to a stronger commitment to investing in green assets. These results remain robust even after including demographic controls (Table 8, model (3): coeff(Crisis) = -0.354, $p > 0.05$).

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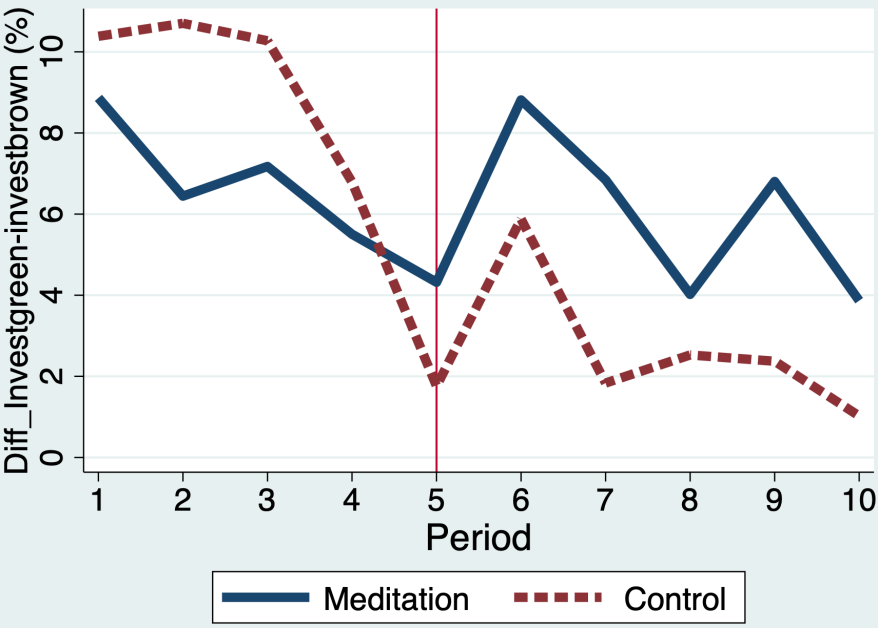
observed effects were attributable directly to the intervention. To this end, we employed the Average Treatment Effect (ATE) test, utilizing the Augmented Inverse Probability Weighting (AIPW) method. This approach was instrumental in substantiating the significance of the interaction between crisis conditions and the applied treatment (coeff(Crisis x Treatment) = 4.047, $p < 0,10$), while conclusively ruling out the presence of selection bias. The results of the ATE analysis provide robust evidence that, in comparison to the control group, the meditation group exhibited a reduced tendency to divest from green assets during crisis situations. Crucially, these findings affirm that the observed behavioral shift is a direct consequence of the treatment itself (See table 10 in Internet Appendix for details).

[22] The results in Table 7 remain significant even when older subjects (over 30) are taken into account, with the exception of the (Crisis Treatment) coefficient, which is also significant but at the 10% level (see Table 7-A in the Supplementary Tables document).

All results in table 7 remain consistent even after controlling for periods, to take account of a possible learning effect (see Table 7-B in the Supplementary Tables document).

Figure 3: Average difference of proportion between green and brown (in %) by treatment



Notes: Figure 3 shows the evolution over time of the difference Invest_Green - Invest_Brown by treatment: mindfulness (Treated group) versus mind-wandering (Control group).

3.5 Robustness checks

All the tables related to the robustness checks can be found in the Supplementary tables file. See "Summary of all Tables 7 and 8" in Internet Appendix A.

As a first robustness check, we conducted Tobit regressions to ensure the consistency of the multivariate analysis concerning the effect of meditation (Table 7) and green preference (Table 8, Internet Appendix). The results from Tables 7 and 8 remain unaffected by this change, confirming the reliability of our findings.

Furthermore, we conducted additional robustness checks with respect to different age groups. Based on data from the OECD database on graduates, the average graduation age in France is 30 for Ph.D. degrees, 26 for Master's degrees (or 24 for the first long degree), and 23 for Bachelor's degrees. To investigate the impact of age on our analysis, we replicated the main analysis reported in Table 7 using various filters: (i) considering only subjects who are 26 years of age or younger - Table 7-D, (ii) considering only subjects who are 24 years of age

or younger - Table 7-E, (iii) considering only subjects who are 23 years of age or younger - Table 7-F, and (iv) considering only subjects who are 30 years of age or younger, while excluding two subjects (subject 32 and 180) who did not change the proportion of investment during the whole market - Table 7-G. Despite these variations in age groups, the coefficients of the interaction between Crisis and Treatment remain positive and significant at the 5% level for all the filters used. This reaffirms the robustness of the relationship between our variables of interest.

Equivalent regressions were also conducted for the green preference analysis in table 8 (see tables 8-B to 8-E). The consistent absence of an impact of the crisis periods on meditators reinforces our initial findings.

Overall, these robustness checks strengthen the validity and reliability of our results, providing further confidence in the conclusions drawn from the main analysis.

4. Discussion and conclusion

Before delving into the discussion, we must warn the reader about the pre-registration issue. We are well aware of the current trends in precautionary approaches of science, addressing pre-registration (Stromland, 2019), and distinguishing between prediction and postdiction to uphold the credibility of the data (Nosek et al., 2018). At the time we gathered our experimental data, the practice of pre-registration was not widespread among economists. We nevertheless stated our research hypotheses, as presented in the introduction, ex ante, i.e. before data collection. Moreover, all our analyses, including robustness tests, were designed prior to conducting the experiments, ensuring a predictive approach. Furthermore, it is important to highlight that one of our key hypotheses (H3), which explored the impact of meditation on investment behavior (specifically, whether meditators invest more in green assets during calm periods compared to non-meditators), was disconfirmed.

4.1. Findings and possible mechanisms

In our study, we collected data from a total of 188 participants, with 97 individuals engaging in a five-day consecutive meditation practice and 91 participants listening to a simple narrative before participating in an economic experiment. Through our analysis, we uncovered several significant patterns in the data. Firstly, we observed that prior to crisis periods, both meditators and non-meditators invested, on average, similar amounts in the green asset. This finding suggests that meditation did not have a significant impact on investment behavior compared to the control group during stable economic conditions, even though the level of altruism is higher in the meditation group. Secondly, we discovered that meditators exhibited a lower level of divestment from the green asset during times of crisis, in comparison to non-meditators.

The latter result aligns with previous studies that have highlighted the tendency of meditation to reinforce prosocial behavior (e.g., Hutcherson et al., 2008; Lutz et al., 2009), combined with improved cognitive processes, decision-making, stress reduction, emotional regulation (Boccia et al. 2015, Levenson et al. 2012, Tang et al., 2007, 2009, 2010). For example, Condon et al., (2013) conducted a study demonstrating that individuals who engaged in eight weeks of meditation were five times more likely to offer help to individuals in distress compared to the control group. In our experiment, despite the shorter duration of meditation (only five days), we still observed a significant effect within our student sample. This suggests that even a brief meditation practice can have a noticeable impact on prosocial behavior. Additionally, our findings contradict the conclusions of Gebauer et al. (2018), who argue that individuals randomly assigned to meditate tend to focus more on themselves rather than on others. Our study provides evidence that meditation, even within a short timeframe, can foster prosocial tendencies, particularly in stressful crisis contexts. Furthermore, our research reveals that participants, on the whole, invest significantly more in the green asset compared to the brown asset, despite the latter consistently yielding higher profits. This finding is in line with the results of Riedl and Smeet (2017), who found that investors are willing to accept financial underperformance in order to align with their moral values and engage in social signalling. Lastly, our study demonstrates that participants with higher risk

tolerance tend to invest significantly more in both green and brown assets. This outcome aligns with existing literature, which consistently establishes a negative relationship between individuals' risk aversion and their investment in risky assets (e.g., Cohn et al., 2015).

Our initial findings, which reveal comparable investments in green assets between meditators and non-meditators during stable periods, as well as reduced divestment from green assets among meditators during times of crises, constitute the primary contribution of our study to the existing literature. Notably, we are the first, to our knowledge, to investigate the effects of meditation practice on socially responsible investments specifically in the context of financial crises.

4.2. Caveats

Our study design raises seven potential concerns including, (i) the possibility of a *selection bias*, and (ii) the potential influence of an *endowment effect*.

(i) Due to the student selection process, with the meditators invited on 5 consecutive days and the control group on a single day, a slight selection bias was possible. To take this into account, a multi-method analysis turned out to be a key test for assessing the robustness of the results. As an example, regarding the investigation of the main result concerning investment in green assets during the crisis, our study included the use of a range of non-parametric tests, and various statistical models, such as Random Effect models and Random Effect Tobit models. Each model played a pivotal role in corroborating our initial observations. More importantly, to mitigate potential selection bias, we ran multiple specifications, including the variables that differed between groups, such as social value orientation (SVO) and decision time. This was essential to control these disparities and found that results remained significantly consistent across these different specifications. Finally, we conducted the Average Treatment Effect test, combined with the Augmented Inverse Probability Weighting method to also mitigate potential selection bias. This test provided a further indication that our results were consistent.

The uniformity and significance of the outcomes obtained from these diverse analytical methods provide a solid foundation to be confident in the observed treatment effect. Such

consistency in the results reduces potential concerns about the presence of a possible selection bias. This underlines the validity of our conclusions regarding the impact of treatment on investment behavior in green assets. This careful approach in our methodology helps to support the credibility of our results, while suggesting a large impact of meditation on green investment behavior specifically during financial crises.

In a prospective deliberation, let's entertain a speculative assumption regarding the inherent characteristics of participants who selected meditation. It is possible that these individuals possess traits such as marked patience or are navigating recent stress or emotional disturbances. Given that participants were unaware of their engagement in meditation at the outset, this hypothesis remains conjectural. Nonetheless, such predispositions might incline them towards seeking the 'warm-glow effect' associated with green investments during periods of volatility. This inclination towards empathy, emotional sensitivity, and eco-friendly practices could suggest a potential selection bias. If these traits are not sufficiently accounted for in our set of variables, our results could be more vulnerable and less robust. This scenario postulates that unaccounted-for participant characteristics could potentially influence the study results.

(ii) Secondly, concerning the issue of an endowment effect, a concern arises from the fact that meditators received five times more show-up fees compared to non-meditators. This discrepancy occurred because meditators had to attend mindfulness training sessions for five consecutive days, with a daily show-up fee as compensation. The argument is that due to their greater financial resources, meditators may have been more inclined towards generous behavior. Specifically, they could have been more prone to philanthropic actions by investing more in green assets, or less in brown ones, compared to their non-meditating counterparts. However, this perspective is open to debate for the following reasons. Firstly, in addressing the potential endowment effect on meditators in our study, it is imperative to consider the subjective perception of their compensation. The participants in the meditation group, who received higher show-up fees due to their attendance at multiple sessions, might not have viewed this additional compensation as a windfall or a gift. Instead, it is highly plausible that they perceived it as a rightful remuneration for the tangible costs and efforts they incurred, such as transportation expenses each day, and the time invested in commuting to the

university for the meditation sessions. For example, the minimum price for an hour's work in France is 11.65 euros, and the price of a streetcar ticket is 1.60 euros. This means that the 45 minutes of meditation plus the commute make the lump-sum payment very low in relation to the efforts made and the constraints required, thereby reducing the likelihood of an endowment effect. This perspective is aligned with the behavioral economic principles outlined by List, 2007, which suggest that how individuals perceive the source of their earnings can significantly influence their subsequent behavioral choices. If meditators considered their compensation as a quid pro quo for their extra time and effort, this could have fostered a mindset more oriented towards fair exchange than gratuitous generosity. Such a mindset might lead them to prioritize their self-interests, aligning their investment decisions more with personal financial considerations rather than altruistic inclinations. This potential reframing of the compensation from a benevolent gift to an earned entitlement could thus mitigate, if not entirely negate, the presumed impact of an endowment effect, leading to increased generosity in investment behavior. Second, the empirical evidence about the association between wealth and generosity is mixed. Some studies reported no relationship (Andreoni and Vesterlund, 2001; Andreoni, 2006; Vesterlund, 2006), some found a positive relationship (e.g., Eckel et al., 2007; Erkal et al., 2011; Andreoni and Payne, 2013), some others found a negative one (e.g., Auten et al., 2002; Schulz-Sandhof, K. and Schupp, J., 2022) and finally some reported a non-linear U-shaped relation (e.g., McClelland and Brooks, 2004; List, 2011). Finally, if we look at the hourly rate earned by participants, meditators earned 11.20 euros per hour spent on this experiment, while non-meditators were paid the equivalent of 22.8 euros per hour, which shows that the wealth effect (calculated a posteriori) relative to the time spent is even higher for non-meditators.

(iii) We are also aware that the number of participants in this study is relatively small, given the challenges we faced in setting up this experiment. This explains why the statistical results are statistically significant but limited. As a result, this initial research is primarily exploratory, and cannot be regarded as fully conclusive. It therefore calls for further work on these topics, along the same lines as the recently published studies by Charness et al. (2024).

(iv) Furthermore, while this experiment provides valuable insights into the impact of meditation on behavioral modification, it falls short of delineating the underlying

mechanisms through which meditation exerts its influence. This raises critical questions about the specific pathways of meditation's effect: Does it predominantly alter emotional states or does it act through cognitive system alterations? Does it influence the perception of context, or does it accentuate the salience of certain information? The scope of this study primarily revolves around assessing the overarching consequences of meditation. However, to achieve a more nuanced understanding of mediators and underlying mechanisms, future research efforts will be essential.

(v) In addition, meditation can be perceived as an enjoyable activity[23] (Newberg et al., 2010), potentially elucidating the heightened willingness of practitioners to forego additional financial rewards. The positive results discerned in this study, particularly the elevated altruistic tendencies, inclination towards environmentally friendly assets, and reduced disinvestment from these assets in crisis scenarios linked to meditation, may be explained by the intrinsically enjoyable nature of the meditative practice—an aspect that merits further exploration in subsequent studies.

(vi) This study faces challenges in fully accounting for social desirability and the image effect, where subjects might alter their behavior to align with societal norms or personal image. Although Milfont (2009) found little correlation between social desirability and self-reported pro-environmental behavior, suggesting minimal response distortion, Lanz et al (2022) questioned the effectiveness of social desirability scales in detecting "faking good" behaviors. This leaves the impact of the image effect in our study uncertain. Despite these complexities, it's crucial to consider these factors when interpreting our findings, urging a careful and nuanced evaluation. However, we have no indication that meditation influences social desirability, or that such a bias, if present and evenly distributed across treatments, would skew our observed results.

To address these concerns, future research could take additional measures. Firstly, offer a 5-day control treatment exactly similar to the meditation treatment, even though this may generate other annoying psychological and cognitive consequences for the participants, secondly directly assess patience using experimental tasks to capture participants' time preferences. This will offer a better understanding of patience's potential influence on

[23] The experimenters spoke to many of the participants and found that they had experienced the task as one of relaxation, interaction and self-awareness, but the term "enjoyable" did not come up.

investment behavior, especially in relation to differences between meditators and non-meditators. Thirdly, trying to neutralize the endowment effect by providing non-meditators with monetary compensations equivalent to those given to meditators. Finally, where possible, the number of participants should be increased and current results replicated.

By incorporating these suggestions, future research can gain a more comprehensive understanding of meditation's effects on investment behavior, enhancing the findings' validity and generalizability.

4.3. Implication and conclusion

This research highlights that individuals practicing meditation exhibit a lower propensity to divest from green assets during financial downturns, suggesting meditation's potential role in bolstering socially responsible investment behaviors during economic crises. Mindfulness may thus contribute to fostering pro-environmental actions, a critical element in addressing the global challenge of climate change. Beyond governmental and technological interventions, a cultural shift towards sustainability is essential. Studies, such as those by Wamsler and Brink (2018), have demonstrated that higher levels of mindfulness correlate with stronger support for climate change mitigation and adaptation efforts, underlining the untapped potential of mindfulness practices in environmental stewardship.

Incorporating meditation into the corporate and financial sectors presents significant benefits, including improved emotional regulation and enhanced prosocial behavior, especially valuable in high-stress situations. This could lead to more deliberate investment decisions, aligning financial strategies with sustainability goals. Notably, institutions like Aetna, BlackRock, Bridgewater Associates, Goldman Sachs, HSBC, and JP Morgan, along with mindfulness-promoting firms such as Headspace, SIGMA, Lexion Capital, Highlander, and Abacus, have recognized the utility of mindfulness in promoting workplace well-being, ethical business practices, and a shift towards more responsible financial engagement.

The synergy between emotional resilience and prosocial inclinations becomes particularly salient during crises, allowing financial professionals to maintain ethical investment standards amidst uncertainty. Furthermore, meditation's calming influence may

benefit political leaders and the general population, potentially leading to more thoughtful governance and a unified approach to crises, including public health emergencies like the COVID-19 pandemic.

In sum, mindfulness encourages a commitment to social and environmental responsibility by fostering empathy, awareness of the present moment, and intrinsic values, while also moderating emotional responses to stress and panic in crisis contexts. This confluence of benefits suggests promising avenues for exploration and implementation in finance and broader societal contexts, warranting further research and application in these fields.

Declaration about generative AI

During the preparation of this document, we used ChatGPT for editorial support and language checking. After each use, we meticulously re-read and re-modified the material as required. The final content is our sole responsibility.

Ethical Committee

This non-interventional study was performed under the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments. This research was validated by the ethical committee of the XXX (University of XXX).

References:

1. Andreoni, J. (2006). Philanthropy. *Handbook of the Economics of Giving, Altruism and Reciprocity*, 2:1201–1269.
2. Andreoni, J. and Payne, A. A. (2013). Charitable giving. In *Handbook of Public Economics*, volume 5, pages 1–50. Elsevier.
3. Andreoni, J. and Vesterlund, L. (2001). Which is the fair sex? Gender differences in altruism. *The Quarterly Journal of Economics*, 116(1):293–312.
4. Arch, J. J., & Craske, M. G. (2006). Mechanisms of mindfulness: Emotion regulations following a focused breathing induction. *Behavior Research and Therapy*, 44, 1849–1858.

5. Auten, G. E., Sieg, H., and Clotfelter, C. T. (2002). Charitable giving, income, and taxes: An analysis of panel data. *American Economic Review*, 92(1):371–382.
6. Barbaro, N., & Pickett, S. M. (2016). Mindfully green: Examining the effect of connectedness to nature on the relationship between mindfulness and engagement in pro-environmental behavior. *Personality and Individual Differences*, *93*, 137-142.
7. Barreda-Tarrazona, I., Matallín-Sáez, J. C., & Balaguer-Franch, M. R. (2011). Measuring investors' socially responsible preferences in mutual funds. *Journal of Business Ethics*, *103*, 305-330.
8. Bauer, R., Ruof, T., & Smeets, P. (2021). Get real! Individuals prefer more sustainable investments. *The Review of Financial Studies*, *34*(8), 3976-4043.
9. Bénabou, R. and J. Tirole (2010). Individual and corporate social responsibility. *Economica,* 77, 1–19.
10. Bollen, N. P. (2007). Mutual fund attributes and investor behavior. *Journal of financial and quantitative analysis*, *42*(3), 683-708.
11. Bonnefon, J. F., Landier, A., Sastry, P. R., & Thesmar, D. (2022). The Moral Preferences of Investors: Experimental evidence (No. w29647). *National Bureau of Economic Research*.
12. Boccia M, Piccardi L, Guariglia P. (2015). The Meditative Mind: A Comprehensive Meta-Analysis of MRI Studies. *Biomed Res Int.*, 2015:419808.
13. Bordalo, P., Gennaioli, N., & Shleifer, A. (2013). Salience and consumer choice. *Journal of Political Economy*, *121*(5), 803-843
14. Borgers, A., J. Derwall, K. Koedijk & J. ter Horst (2015). Do social factors influence investment behavior and performance? Evidence from mutual fund holdings. *Journal of Banking & Financ*e, 60, 112-126.
15. Bowles, S., & Polania-Reyes, S. (2012). Economic Incentives and Social Preferences: Substitutes or Complements? *Journal of Economic Literature*, *50*(2), 368–425.
16. Brefczynski-Lewis, J. A., Lutz, A., Schaefer, H. S., Levinson, D. B., & Davidson, R. J. (2007). Neural correlates of attentional expertise in long-term meditation practitioners. *Proceedings of the National Academy of Sciences*, *104*(27), 11483-11488.
17. Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, *84*(4), 822.
18. Camerer, C. F., & Fehr, E. (2006). When Does "Economic Man" dominate social behavior? *Science*, *311*.

19. Chambers, R., Lo, B. C. Y., & Allen, N. B. (2008). The impact of intensive mindfulness training on attentional control, cognitive style, and affect. *Cognitive Therapy and Research*, *32*, 303-322.
20. Charness, G., Le Bihan, Y., & Villeval, M. C. (2024). Mindfulness training, cognitive performance and stress reduction. *Journal of Economic Behavior & Organization*, *217*, 207-226.
21. Cohn, A., Engelmann, J., Fehr, E., & Maréchal, M. A. (2015). Evidence for countercyclical risk aversion: An experiment with financial professionals. *American Economic Review*, *105*(2), 860-885.
22. Condon, P., Desbordes, G., Miller, W. B., & DeSteno, D. (2013). Meditation increases compassionate responses to suffering. *Psychological science*, *24*(10), 2125-2127.
23. Dagar, C., Pandey, A., & Navare, A. (2022). How yoga-based practices build altruistic behavior? Examining the role of subjective vitality, self-transcendence, and psychological capital. *Journal of Business Ethics*, *175*, 191-206.
24. De Vibe, M., Bjørndal, A., Tipton, E., Hammerstrøm, K., & Kowalski, K. (2012). Mindfulness based stress reduction (MBSR) for improving health, quality of life, and social functioning in adults. *Campbell Systematic Reviews*, *8*(1), 1-127.
25. Dimson, E., Karakaş, O., & Li, X. (2015). Active ownership. *The Review of Financial Studies*, *28*(12), 3225-3268.
26. Duchêne, S., Nguyen-Huu, A., Dubois, D., & Willinger, M. (2022). Risk-return trade-offs in the context of environmental impact: a lab-in-the-field experiment with finance professionals. *Working paper*.
27. Eckel, C., Grossman, P. J., and Milano, A. (2007). Is more information always better? An experimental study of charitable giving and hurricane katrina. *Southern Economic Journal*, pages 388–411.
28. Eckel, C. C., D. H. Herberich, and J. Meer (2017). A field experiment on directed giving at a public university. *Journal of Behavioral and Experimental Economics,* 66, 66–71.
29. Engel, Y., Ramesh, A., & Steiner, N. (2020). Powered by compassion: The effect of loving-kindness meditation on entrepreneurs' sustainable decision-making. *Journal of Business Venturing*, *35*(6), 105986.
30. Ericson, T., Kjønstad, B. G., & Barstad, A. (2014). Mindfulness and sustainability. *Ecological Economics*, *104*, 73-79.

31. Erkal, N., L. Gangadharan, and N. Nikiforakis, (2011). Relative Earnings and Giving in a Real-Effort Experiment. *American Economic Review,* 101 (7), 3330–3348.
32. Fehr, E., & Fischbacher, U. (2002). Why Social Preferences Matter-The Impact of Non-Selfish Motives on Competition. *The Economic Journal*, *112*(478), 1–33.
33. Gajewski, J. F., Heimann, M., & Meunier, L. (2022). Nudges in SRI: the power of the default option. *Journal of Business Ethics*, 1-20.
34. Gentina, E., Daniel, C., & Tang, T. L. P. (2021). Mindfulness reduces avaricious monetary attitudes and enhances ethical consumer beliefs: Mindfulness training, timing, and practicing matter. *Journal of Business Ethics*, *173*, 301-323.
35. Gevorkova, V., Sangiorgi, I., & Vogt, J. (2023). Cleansing investor's conscience: the effects of incidental guilt on socially responsible investment decisions. *Journal of Business Ethics*, 1-26.
36. Gneezy, U., & Potters, J. (1997). An experiment on risk taking and evaluation periods. *The Quarterly Journal of Economics*, *112*(2), 631-645.
37. Greiner, B. (2015). Subject pool recruitment procedures: organizing experiments with ORSEE. *Journal of the Economic Science Association*, *1*(1), 114-125.
38. Guenster, N., Brodback, D., Pouget, S., & Wang, R. (2022). The Valuation of Corporate Social Responsibility: A Willingness to Pay Experiment. *Available at SSRN 4260824*.
39. Guiso, L., Sapienza, P., & Zingales, L. (2018). Time varying risk aversion. *Journal of Financial Economics*, *128*(3), 403-421.
40. Hafenbrack, A. C., Kinias, Z., & Barsade, S. G. (2014). Debiasing the mind through meditation: Mindfulness and the sunk-cost bias. Psychological science, 25(2), 369-376.
41. Hafenbrack, A. C., & Vohs, K. D. (2018). Mindfulness meditation impairs task motivation but not performance. *Organizational Behavior and Human Decision Processes*, *147*, 1-15.
42. Hafenbrack, A. C., Cameron, L. D., Spreitzer, G. M., Zhang, C., Noval, L. J., & Shaffakat, S. (2020). Helping people by being in the present: Mindfulness increases prosocial behavior. Organizational Behavior and Human Decision Processes, 159, 21-38.
43. Heeb, F., Kölbel, J. F., Paetzold, F., & Zeisberger, S. (2023). Do investors care about impact?. *The Review of Financial Studies*, *36*(5), 1737-1787.
44. Heimann, M., Pouget, S., Mullet, É., & Bonnefon, J. F. (2011). The experimental approach to trust in socially responsible investment funds. In *Finance and sustainability: Towards a new paradigm? A post-crisis agenda* (Vol. 2, pp. 169-183). Emerald Group Publishing Limited.

45. Hölzel, B. K., Carmody, J., Vangel, M., Congleton, C., Yerramsetti, S. M., Gard, T., & Lazar, S. W. (2011). Mindfulness practice leads to increases in regional brain gray matter density. *Psychiatry research: Neuroimaging*, *191*(1), 36-43.
46. Hutcherson, C. A., Seppala, E. M., & Gross, J. J. (2008). Loving-kindness meditation increases social connectedness. *Emotion*, *8*(5), 720.
47. Isen, A. M., & Reeve, J. (2005). The influence of positive affect on intrinsic and extrinsic motivation: Facilitating enjoyment of play, responsible work behavior, and self-control. *Motivation and emotion*, *29*, 295-323.
48. Iwamoto, S.K., Alexander, M., Torres, M. *et al.* (2020). Mindfulness Meditation Activates Altruism. *Scientific Reports* 10, 6511.
49. Kandasamy, N., Hardy, B., Page, L., Schaffner, M., Graggaber, J., Powlson, A. S., ... & Coates, J. (2014). Cortisol shifts financial risk preferences. *Proceedings of the National Academy of Sciences*, *111*(9), 3608-3613.
50. Kocher, M. G., Lucks, K. E., & Schindler, D. (2019). Unleashing animal spirits: Self-control and overpricing in experimental asset markets. *The Review of Financial Studies*, *32*(6), 2149-2178.
51. Kreplin, U., Farias, M., & Brazil, I. A. (2018). The limited prosocial effects of meditation: A systematic review and meta-analysis. *Scientific reports*, *8*(1), 2403.
52. Krueger, P., Sautner, Z., & Starks, L. T. (2020). The importance of climate risks for institutional investors. *The Review of Financial Studies*, *33*(3), 1067-1111.
53. La Forge, P. G. (2004). Cultivating moral imagination through meditation. *Journal of Business Ethics*, *51*, 15-29.
54. La Forge, P. G. (2000). Four steps to a fundamental ethical vision through meditation. *Journal of Business Ethics*, 25-34.
55. Lanz, L., Thielmann, I., & Gerpott, F. H. (2022). Are social desirability scales desirable? A meta-analytic test of the validity of social desirability scales in the context of prosocial behavior. *Journal of Personality*, *90*(2), 203-221.
56. Levenson, R. W., Ekman, P., & Ricard, M. (2012). Meditation and the startle response: a case study. *Emotion*, 12(3), 650.
57. Lins, K. V., Servaes, H., & Tamayo, A. (2017). Social capital, trust, and firm performance: The value of corporate social responsibility during the financial crisis. *The Journal of Finance*, *72*(4), 1785-1824.

58. List, J. A. (2007). On the interpretation of giving in dictator games. *Journal of Political Economy*, *115*(3), 482–493.
59. List, J. A. (2011). The Market for Charitable Giving. *Journal of Economic Perspectives* 25 (2), 157–180.
60. Lo, A. W., & Repin, D. V. (2002). The psychophysiology of real-time financial risk processing. *Journal of Cognitive Neuroscience*, *14*(3), 323-339.
61. Long, E. C., & Christian, M. S. (2015). Mindfulness buffers retaliatory responses to injustice: A regulatory approach. *Journal of Applied Psychology*, 100(5), 1409–1422.
62. Luberto, C. M., Shinday, N., Song, R., Philpotts, L. L., Park, E. R., Fricchione, G. L., & Yeh, G. Y. (2018). A systematic review and meta-analysis of the effects of meditation on empathy, compassion, and prosocial behaviors. *Mindfulness*, *9*, 708-724.
63. Lutz, A., Greischar, L. L., Perlman, D. M., & Davidson, R. J. (2009). BOLD signal in insula is differentially related to cardiac function during compassion meditation in experts vs. novices. *Neuroimage*, *47*(3), 1038-1046.
64. Malmendier, U., & Nagel, S. (2011). Depression babies: Do macroeconomic experiences affect risk taking? *The Quarterly Journal of Economics*, *126*(1), 373-416.
65. McClelland, R., and A. C. Brooks (2004). What Is the Real Relationship between Income and Charitable Giving? *Public Finance Review* 32 (5), 483–497.
66. Milfont, T. L. (2009). The effects of social desirability on self-reported environmental attitudes and ecological behaviour. *The Environmentalist*, *29*, 263-269.
67. Mrazek, M. D., Smallwood, J., & Schooler, J. W. (2012). Mindfulness and mind-wandering: Finding convergence through opposing constructs. *Emotion,* 12, 442–448.
68. Murphy, R. O., Ackermann, K. A., & Handgraaf, M. J. (2011). Measuring social value orientation. *Judgment and Decision making*, *6*(8), 771-781.
69. Newberg, A. B., Wintering, N., Khalsa, D. S., Roggenkamp, H., & Waldman, M. R. (2010). Meditation effects on cognitive function and cerebral blood flow in subjects with memory loss: a preliminary study. *Journal of Alzheimer's Disease*, *20*(2), 517-526.
70. Nofsinger, J., & Varma, A. (2014). Socially responsible funds and market crises. *Journal of Banking & Finance*, *48*, 180-193.
71. Nofsinger, J. Patterson, F., Shank, C. (2018). Decision-making, financial risk aversion, and behavioral biases: The role of testosterone and stress. *Economics & Human Biology*, 29, 1-16.
72. Nosek, B. A., Ebersole, C. R., DeHaven, A. C., & Mellor, D. T. (2018). The preregistration revolution. *Proceedings of the National Academy of Sciences*, *115*(11), 2600–2606.

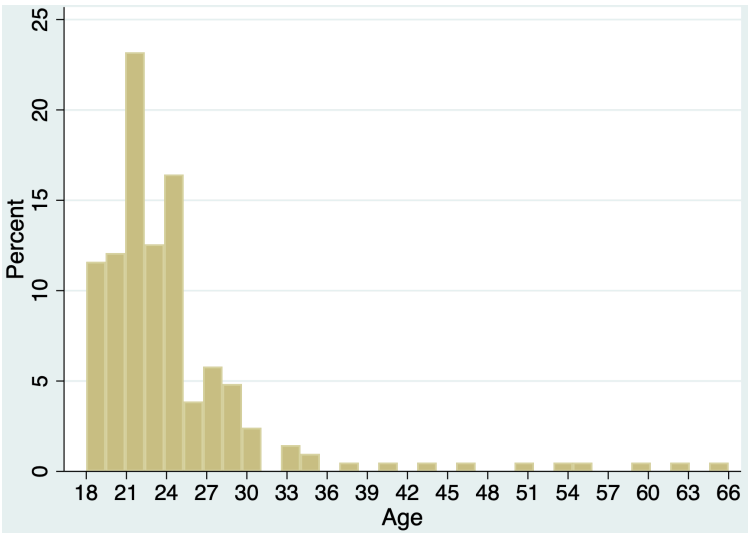
73. Orazi, D. C., Chen, J., & Chan, E. Y. (2021). To erect temples to virtue: Effects of state mindfulness on other-focused ethical behaviors. *Journal of Business Ethics*, *169*(4), 785-798.
74. Porcelli, A. J., & Delgado, M. R. (2009). Acute stress modulates risk taking in financial decision making. *Psychological Science*, *20*(3), 278-283.
75. Riedl, A., & Smeets, P. (2017). Why do investors hold socially responsible mutual funds?. *The Journal of Finance*, *72*(6), 2505-2550.
76. Ruedy, N. E., & Schweitzer, M. E. (2010). In the moment: The effect of mindfulness on ethical decision making. *Journal of Business Ethics*, *95*, 73-87.
77. Schulz-Sandhof, K. and Schupp, J. (2022). Charitable giving and income: Households with high income donate less than poorer households relative to their disposable income, DIW Weekly Report, ISSN 2568-7697, Deutsches Institut für Wirtschaftsforschung (DIW), Berlin, Vol. 12, Iss. 45/46, 283-292.
78. Sears, R. W., Tirch, D. D., & Denton, R. B. (2011). Mindfulness in clinical practice. *Professional Resource Press/Professional Resource Exchange*.
79. Shapiro, S. L., Carlson, L. E., Astin, J. A., & Freedman, B. (2006). Mechanisms of mindfulness. Journal of clinical psychology, 62(3), 373-386.
80. Shapiro, S. L., Jazaieri, H., & Goldin, P. R. (2012). Mindfulness-based stress reduction effects on moral reasoning and decision making. *The Journal of Positive Psychology*, *7*(6), 504-515.
81. Small, C., & Lew, C. (2021). Mindfulness, moral reasoning and responsibility: Towards virtue in ethical decision-making. *Journal of Business Ethics*, *169*(1), 103-117.
82. Statman, M. (2004). What do investors want? *The Journal of Portfolio Management*, *30th Anniversary*, 30 (5), 153 - 161.
83. Strømland, E. (2019). Preregistration and reproducibility. *Journal of Economic Psychology*, 75, Part A, 102143.
84. Sun, S., Yao, Z., Wei, J., & Yu, R. (2015). Calm and smart? A selective review of meditation effects on decision making. *Frontiers in psychology*, *6*, 1059.
85. Tang, Y. Y., Ma, Y., Wang, J., Fan, Y., Feng, S., Lu, Q., ... & Posner, M. I. (2007). Short-term meditation training improves attention and self-regulation. *Proceedings of the National Academy of Sciences*, *104*(43), 17152-17156.
86. Tang, Y. Y., Ma, Y., Fan, Y., Feng, H., Wang, J., Feng, S., ... & Fan, M. (2009). Central and autonomic nervous system interaction is altered by short-term meditation. *Proceedings of the National Academy of Sciences*, *106*(22), 8865-8870.

87. Tang, Y. Y., Lu, Q., Geng, X., Stein, E. A., Yang, Y., & Posner, M. I. (2010). Short-term meditation induces white matter changes in the anterior cingulate. *Proceedings of the National Academy of Sciences*, *107*(35), 15649-15652.
88. Tatarnikova, O., Duchene, S., Sentis, P., & Willinger, M. (2023). Portfolio instability and socially responsible investment: experiments with financial professionals and students. *Journal of Economic Dynamics and Control*, 104702.
89. Thaler, R. H., & Sunstein, C. R. (2009). *Nudge: Improving decisions about health, wealth, and happiness*. Penguin.
90. Tversky, A., & Kahneman, D. (1981). The framing of decisions and the psychology of choice. *science*, *211*(4481), 453-458.
91. Van den Hurk, P. A., Giommi, F., Gielen, S. C., Speckens, A. E., & Barendregt, H. P. (2010). Greater efficiency in attentional processing related to mindfulness meditation. *Quarterly journal of experimental psychology*, *63*(6), 1168-1180.
92. Vesterlund, L. (2006). Why do people give. *The nonprofit sector: A research handbook*, 2:168–190.
93. Wamsler, C., & Brink, E. (2018). Mindsets for sustainability: Exploring the link between mindfulness and sustainable climate adaptation. *Ecological Economics*, *151*, 55-61.
94. Wang, M., Qiu, C., & Kong, D. (2011). Corporate social responsibility, investor behaviors, and stock market returns: Evidence from a natural experiment in China. *Journal of business ethics*, *101*, 127-141.
95. Weber, M., Weber, E. U., & Nosić, A. (2013). Who takes risks when and why: Determinants of changes in investor risk taking. *Review of Finance*, *17*(3), 847-883.
96. Wen, X., Rafaï, I., Duchêne, S., & Willinger, M. (2022). Did mindful people do better during the COVID-19 pandemic? Mindfulness is associated with well-being and compliance with prophylactic measures. *International Journal of Environmental Research and Public Health*, *19*(9), 5051.
97. Xiong, J. X. (2021). The impact of ESG risk on stocks. *The Journal of Impact and ESG Investing*, *2*(1), 7-18.

Internet Appendix

Internet Appendix A

Figure 4: Histogram of the participants' age



Summary of all Tables 7 and 8

Tables 7	**Tables 8**	**Model**	**Filters**	**Period as control**	**Number of observations**
Table 7	Table 8	random effect panel regression	Age <= 30	No	1880
Table 7-A	-	random effect panel regression	No filter	Yes	2070
Table 7-B	Table 8	random effect panel regression	Age <= 30	Yes	1880
Table 7-C	Table 8-A	metobit	Age <= 30	No	1880
Table 7-D	Table 8-B	random effect panel regression	Age <= 26	No	1650
Table 7-E	Table 8-C	random effect panel regression	Age <= 24	No	1430
Table 7-F	Table 8-D	random effect panel regression	Age <= 23	No	1230
Table 7-G	Table 8-E	random effect panel regression	Age <= 30 and without passive subjects who did not change the proportion of investment during the whole market.	No	1860
Table 7-H	-	random effect panel regression	Age <= 30 and without the observations where the subject has reached the time limit (60 seconds).	No	1857

Table 8: Impact of the crisis on Green preference (Invest_green – Invest_brown)

Dependent variable (Y) = diff_investgreen_investbrown

	Meditation (1)	Control (2)	Meditation (3)	Control (4)	Meditation (5)	Control (6)
Crisis	-0.392	-5.255*	-0.354	-4.317*	4.926+	2.051
	(2.100)	(2.122)	(2.199)	(2.182)	(2.867)	(2.971)
Period					-1.130+	-1.374***
					(0.677)	(0.421)
SVO_score			20.73	6.323	20.94	6.335
			(12.92)	(11.01)	(12.87)	(11.03)
Risk_tolerance			-0.0105	0.506	-0.00660	0.538
			(1.676)	(1.139)	(1.675)	(1.139)
MAAS_score			-0.164	-0.0352	-0.166	-0.0356
			(0.317)	(0.213)	(0.317)	(0.213)
Female			4.229	10.01+	4.203	10.06+
			(5.390)	(5.457)	(5.379)	(5.472)
Age			-0.688	1.741*	-0.686	1.743*
			(0.764)	(0.793)	(0.766)	(0.792)
2.study			-15.04	-21.63	-14.79	-21.45
			(19.65)	(17.88)	(19.70)	(17.91)
3.study			-14.53	-10.24	-14.43	-10.05
			(20.47)	(17.41)	(20.50)	(17.43)
4.study			-8.528	-10.47	-8.394	-10.40
			(19.75)	(17.18)	(19.80)	(17.21)
Decision_time			0.00550	0.128+	-0.0489	0.0590
			(0.0687)	(0.0775)	(0.0834)	(0.0760)
_cons	6.462+	7.982**	16.24	15.42	18.66	18.05
	(3.620)	(2.945)	(19.27)	(16.98)	(19.39)	(16.86)

N	970	910	970	910	970	910
R-squ - overall	0.000	0.007	0.038	0.090	0.042	0.093

Notes: Table 8 presents a random effect panel regression with cluster-robust standard errors at the participant level (for correlation between observations within cluster). The dependent variable is the investment difference in green and brown assets: diff_investgreen_investbrown = (Invest_green – Invest_brown). In regressions 1, 3 and 5 we selected only the Meditation group and in regressions 2, 4 and 6 only the control group. Independent variables are the binary variables, Crisis (= to 1 for crisis periods (periods 5 to 10)), Treatment (= to 1 for meditation group). The control variables SVO_score, Risk_tolerance, MAAS_score and Decision_time, are continuous variables that represent the SVO score, the risk score, the MAAS score respectively and the time spent in the asset allocation task. The continuous variable Age is the age of the subject. Study represents the field of study (=1 for literature or arts, =2 for economics or management, =3 for scientific, =4 for others). Robust-Cluster Standard errors in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$.

When we control for the effect of periods, we still do observe a difference reflecting the same dynamic, but which is not econometrically expressed in the same way. The crisis coefficient for the control group is no longer significant (Table 8, model (6): coeff(Crisis) = 2.051, $p > 0.05$), but that of the meditation treatment becomes positive at a significance level of 10% (model (6): coeff(Crisis) = 4.926, $p < 0.15$). These results illustrate that the difference between green and brown investment is consistently greater in the meditation treatment than in the control treatment, whatever the statistical approach.

Table 9: The effects of meditation and crisis on participants' decision time.

Y = decision time (in seconds)

	Decision time **(1)**	Decision time **(2)**
Crisis	-7.354***	5.441***
	(0.623)	(0.951)

Treatment	5.424***	4.801***
	(1.074)	(1.013)
Crisis * Treatment	0.550	0.550
	(1.022)	(1.025)
Period		-2.559***
		(0.174)
SVO		2.064
		(1.787)
Risk_tolerance		0.277
		(0.184)
MAAS		-0.0129
		(0.0371)
Female		0.0873
		(0.946)
Age		0.00599
		(0.166)
2.study		3.572*
		(1.639)
3.study		2.468
		(1.794)
4.study		1.495
		(1.849)
_cons	0.737	3.505*
	(0.662)	(1.667)
N	1880	1880
R-squ - overall	0.128	0.220

Notes: Table 9 presents a random effect panel regression. The dependent variable is the time taken by participants to make a decision in each period. Independent variables are the binary variables, Crisis (= to 1 for crisis periods (periods 5 to 10)), Treatment (= to 1 for meditation group). The interaction variable Crisis ×

Treatment captures the post-crisis effect of the treated group. The control variables SVO_score, Risk_tolerance, MAAS_score and Decision_time, are continuous variables and centered that represent the SVO score, the risk score, the MAAS score respectively and the time spent in the asset allocation task. The continuous variable Age is the age of the subject. Study represents the field of study (=1 for literature or arts, =2 for economics or management, =3 for scientific, =4 for others). Robust-Cluster Standard errors in parentheses. + p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.005.

Table 9-B: Logit regressions (marginal effects) - effect of meditation on SVO_Score

	Svo_score_**dummy** (1)	Svo_score_**dummy** (2)
Treatment	0.225***	0.167*
	(3.56)	(2.48)
MAAS		0.00507
		(1.54)
Female		0.150*
		(2.22)
2.study		0.132
		(0.77)
3.study		0.161
		(0.95)
4.study		0.134
		(0.76)
Age		-0.183
		(-0.59)
participation_Yes		-0.293***
		(-3.87)
gametheory_Yes		0.0135

		(0.16)
N	188	188

Notes: Table 9-B depicts the results of a Logit regression analysis (marginal effects) employing cluster-robust standard errors at the participant level, accounting for correlation between observations within clusters. The dependent variables in columns 1 and 2 is represented by dummy variable **SVO_score_dummy**. **SVO_score_dummy** equals 1 if the participant's Social Value Orientation (SVO) score is higher than the median of SVO scores within the entire subject pool. The independent variable, **Treatment**, is a binary variable with a value of 1 denoting membership in the meditation group. The control variable, **MAAS**, is a continuous variable and represents the Mindful Attention Awareness Scale (MAAS) score. The continuous variable **Age** corresponds to the age of the subject, while the variable **Study** signifies the field of study, taking values of 1 for literature or arts, 2 for economics or management, 3 for scientific disciplines, and 4 for other fields of study. Robust-Cluster Standard errors in parentheses. Significance level: + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$.

Internet Appendix B

Access to all public files (data, analyses, instructions, audios and written transcriptions)
https://osf.io/ygbsp/?view_only=379d137d436e46569467170a7b912f47

Instructions are available at the following url:
https://osf.io/p9k8y?view_only=6a49cb4ec21e4910834078e9d615114a

Written transcription of the reading in the **mind-wandering control treatment** at the following url:
https://osf.io/9bxqt?view_only=6a49cb4ec21e4910834078e9d615114a

Written transcript of a typical meditation session in the **meditation treatment group** at the following url:
https://osf.io/bz4ca?view_only=6a49cb4ec21e4910834078e9d615114a

Internet Appendix C

The audio narrative of the **mind-wandering treatment** is available at the following url: https://osf.io/bzg5w?view_only=6a49cb4ec21e4910834078e9d615114a

The audio of a typical meditation session in the **meditation treatment group** at the following url:
https://osf.io/by5sq?view_only=6a49cb4ec21e4910834078e9d615114a

Internet Appendix D

Invitation message for meditation treatment subjects

Hello #fname# #lname#!

This is an invitation to take part in a five-day economics experiment at XXX's experimental economics laboratory, in room (room number) of the economics faculty (XXX).

From Monday (date) to Thursday (date) you will take part in an activity lasting a maximum of one hour. On Friday (date) you will be asked to take part in an experiment lasting two and a half hours.
All your travels from Monday to Thursday will be remunerated by a fixed amount of 6 euros per day, whatever your campus. In addition to this fixed amount, a variable amount will be paid to you depending on the decisions you make during the experiment on Friday (date).

If you agree to take part in this experiment, your presence is mandatory on all five days. This means that you will be paid in full on Friday (date). You will be offered three slots over the five days.

The scheduled sessions are as follows:
#sessionlist#

If you wish to participate, you can register by clicking on the link: #link#

Please note
- If the registration page for the experience is marked "closed" in red, this means that there are no more places available. In this case, please check from time to time, as some people may unsubscribe.
- Once you've registered for the experiment, you'll receive an e-mail confirming your registration, then a reminder e-mail the day before the experiment.
- If you can't click on the link, copy it (right-click then copy) and paste it into your browser's address bar (right-click then paste).

Internet Appendix E

Invitation message for mind-wandering treatment subjects

Hello #fname# #lname#!

This is an invitation to participate in an economics experiment that will take place in the Experimental Room (XXX, 2nd floor) of the Faculty of Economics (XXX). The scheduled sessions are as follows:
#sessionlist#

If you would like to take part, you can register by clicking on the link: #link#

Please note:

- If the registration page for the experience is marked "closed" in red, this means that there are no more places available. In this case, please check from time to time, as some people unsubscribe.
- Once you've registered for the experiment, you'll receive an e-mail confirming your registration, then a reminder e-mail the day before the experiment.
- If you can't click on the link, copy it (right-click then copy) and paste it into your browser's address bar (right-click then paste).

Internet Supplementary tables

Table 7-A: Investment in green and brown assets (with no filter 207 subjects, 188 who are 30 years of age or younger + 19 who are older than 30 years).

	Green (1)	Brown (2)	Cash (3)	Green (4)	Brown (5)	Cash (6)
Crisis	-10.58***	-6.431***	17.01***	-3.912*	-5.915***	9.838***
	(1.517)	(1.587)	(2.395)	(1.728)	(1.990)	(2.670)
Treatment	1.448	3.577	-5.025+	0.836	2.163	-2.988
	(2.540)	(2.720)	(2.822)	(2.457)	(2.634)	(2.684)
Crisis * Treatment	3.516+	-0.157	-3.358	3.565+	-0.122	-3.442
	(2.024)	(2.330)	(3.355)	(2.025)	(2.330)	(3.356)
Period				-1.441***	-0.179	1.614***
				(0.247)	(0.261)	(0.350)
SVO_score				9.488*	-1.856	-7.625
				(4.706)	(4.892)	(5.278)
Risk_tolerance				1.940***	1.512**	-3.451***
				(0.565)	(0.564)	(0.621)
MAAS_score				0.0113	-0.0330	0.0216
				(0.119)	(0.106)	(0.132)
Female				4.390+	-2.298	-2.092
				(2.422)	(2.293)	(2.960)
Age				0.265	-0.126	-0.138
				(0.188)	(0.140)	(0.161)
2.study				-1.034	11.72*	-10.68*
				(6.352)	(4.904)	(5.355)
3.study				-2.549	6.438	-3.884

				(6.250)	(4.885)	(5.363)
4.study				0.306	8.181+	-8.484
				(6.102)	(4.614)	(5.348)
Decision_time				-0.0716*	-0.0504	0.120**
				(0.0360)	(0.0364)	(0.0463)
_cons	35.81***	26.17***	38.03***	37.97***	20.19***	41.85***
	(1.688)	(1.864)	(2.115)	(6.301)	(4.504)	(5.680)
N	2070	2070	2070	2070	2070	2070
R-squ - overall	0.043	0.027	0.084	0.127	0.093	0.198
Control variables	No	No	No	Yes	Yes	Yes

Notes: Table 7-A presents a random effect panel regression with cluster-robust standard errors at the participant level (for correlation between observations within cluster).

We have selected all subjects: 207 subjects (188 who are 30 years of age or younger + 19 who are older than 30 years).

In columns (1 and 4), (2 and 5) and (3 and 6) the dependent variable is the percentage invested by participants in the green_asset, brown_asset and cash_asset, respectively.

Independent variables are the binary variables, Crisis (= to 1 for crisis periods (periods 5 to 10)), Treatment (= to 1 for meditation group). The interaction variable Crisis × Treatment captures the post-crisis effect of the treated group. The control variables SVO_score, Risk_tolerance, MAAS_score and Decision_time, are continuous variables and centered that represent the SVO score, the risk score, the MAAS score respectively and the time spent in the asset allocation task. The continuous variable Age is the age of the subject. Study represents the field of study (=1 for literature or arts, =2 for economics or management, =3 for scientific, =4 for others). Robust-Cluster Standard errors in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$.

Table 7-B: Investment in green and brown assets, (Period as control).

	Green (1)	Brown (2)	Cash (3)
Crisis	-5.002**	-6.014**	11.04***

	(1.853)	(2.176)	(2.912)
Treatment	1.086	1.909	-2.978
	(2.504)	(2.799)	(2.824)
Crisis Treatment	4.449*	-0.416	-4.031
	(2.129)	(2.519)	(3.586)
Period	-1.484***	-0.225	1.699***
	(0.269)	(0.286)	(0.383)
SVO_score	10.50*	-2.455	-8.036
	(4.849)	(5.103)	(5.280)
Risk_tolerance	1.801***	1.496*	-3.297***
	(0.608)	(0.618)	(0.677)
MAAS_score	-0.0602	0.00361	0.0566
	(0.120)	(0.114)	(0.136)
Female	3.769	-3.734	-0.0349
	(2.428)	(2.505)	(3.109)
Age	0.457	0.230	-0.687
	(0.337)	(0.379)	(0.471)
2.study	-3.506	11.69+	-8.168
	(8.081)	(6.465)	(6.049)
3.study	-4.184	5.400	-1.207
	(8.092)	(6.488)	(6.053)
4.study	0.122	7.623	-7.740
	(8.017)	(6.430)	(6.368)
Decision_time	-0.0704+	-0.0668+	0.133**
	(0.0368)	(0.0392)	(0.0501)
_cons	39.62***	22.49***	37.91***
	(7.952)	(6.174)	(5.913)
N	1880	1880	1880
R-squ - overall	0.121	0.093	0.201

Notes: Table 7-B presents a random effect panel regression with cluster-robust standard errors at the participant level (for correlation between observations within cluster). We have selected only subjects who are 30 years of age or younger. In columns 1, 2 and 3 the dependent variable is the percentage invested by participants in the green_asset, brown_asset and cash_asset, respectively. Independent variables are the binary variables, Crisis (= to 1 for crisis periods (periods 5 to 10)), Treatment (= to 1 for meditation group). The interaction variable Crisis × Treatment captures the post-crisis effect of the treated group. The control variables SVO_score, Risk_tolerance, MAAS_score and Decision_time, are continuous variables and centered that represent the SVO score, the risk score, the MAAS score respectively and the time spent in the asset allocation task. The continuous variable Age is the age of the subject. Study represents the field of study (=1 for literature or arts, =2 for economics or management, =3 for scientific, =4 for others). Robust-Cluster Standard errors in parentheses.+ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.005.

Table 7-C: Investment in green and brown assets (metobit model with filter Age <= 30)

	Green (1)	Brown (2)	Green (3)	Brown (4)
Crisis	-14.23***	-8.904***	-14.10***	-9.261***
	(1.901)	(2.326)	(1.933)	(2.266)
Treatment	1.523	5.843	0.188	3.921
	(3.136)	(4.220)	(2.961)	(4.142)
Crisis * Treatment	4.963*	-0.370	4.971*	-0.351
	(2.518)	(3.292)	(2.520)	(3.282)
SVO_score			12.92*	-5.397
			(6.206)	(7.713)
Risk_tolerance			2.208**	1.776+
			(0.849)	(1.048)
MAAS			-0.0272	0.0390
			(0.160)	(0.168)
Female			6.470*	-2.542

			(3.140)	(4.227)
Age			0.389	0.0126
			(0.443)	(0.598)
2.study			-4.165	18.06
			(8.780)	(11.01)
3.study			-4.969	7.833
			(8.763)	(11.14)
4.study			-0.0666	13.94
			(8.656)	(10.93)
Decision_time			0.0195	-0.0511
			(0.0398)	(0.0457)
_cons	34.46***	21.77***	34.94***	11.39
	(1.883)	(3.106)	(8.665)	(10.89)
N	1880	1880	1880	1880
Log pseudolikelihood	-7102.59	-6545.52	-7092.87	-6537.57
Control variables	No	No	Yes	Yes

Notes: Table 7-C presents *a metobit regression*. We have selected only subjects who are 30 years of age or younger. In columns (1) and (3) ((2) and (4)), the dependent variable is the percentage invested by participants in the green asset (brown_asset). Independent variables are the binary variables, Crisis (= to 1 for crisis periods (periods 5 to 10)), Treatment (= to 1 for meditation group). The interaction variable Crisis × Treatment captures the post-crisis effect of the treated group. The control variables SVO_score, Risk_tolerance, MAAS_score and Decision_time, are continuous variables and centered that represent the SVO score, the risk score, the MAAS score respectively and the time spent in the asset allocation task. The continuous variable Age is the age of the subject. Study represents the field of study (=1 for literature or arts, =2 for economics or management, =3 for scientific, =4 for others). Robust-Cluster Standard errors in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$.

Table 7-D: Investment in green and brown assets (RE panel regression with filter Age <= 26)

	Green (1)	Brown (2)	Green (3)	Brown (4)
Crisis	-12.20***	-7.071***	-12.22***	-7.491***
	(1.628)	(1.971)	(1.665)	(1.941)
Treatment	1.901	3.216	0.684	1.765
	(2.828)	(3.117)	(2.687)	(3.058)
Crisis * Treatment	4.330*	-0.450	4.332*	-0.409
	(2.174)	(2.800)	(2.180)	(2.804)
SVO_score			10.66+	-5.274
			(5.754)	(5.889)
Risk_tolerance			1.769*	1.297+
			(0.692)	(0.703)
MAAS_score			-0.105	0.0240
			(0.134)	(0.128)
Female			2.954	-4.601+
			(2.716)	(2.792)
Age			0.166	0.384
			(0.529)	(0.585)
2.study			-3.969	11.80+
			(8.119)	(6.733)
3.study			-4.171	5.570
			(8.147)	(6.720)
4.study			0.598	9.140
			(8.081)	(6.680)
Decision_time			-0.00207	-0.0551
			(0.0342)	(0.0361)
_cons	35.34***	27.99***	36.92***	22.82***
	(1.802)	(2.110)	(8.100)	(6.398)
N	1650	1650	1650	1650

R-squ - overall	0.057	0.028	0.111	0.091
Control variables	No	No	Yes	Yes

Notes: Table 7-D presents a random effect panel regression with cluster-robust standard errors at the participant level (for correlation between observations within cluster).We have selected only subjects who are 26 years of age or younger. In columns (1) and (3) ((2) and (4)), the dependent variable is the percentage invested by participants in the green asset (brown_asset). Independent variables are the binary variables, Crisis (= to 1 for crisis periods (periods 5 to 10)), Treatment (= to 1 for meditation group). The interaction variable Crisis × Treatment captures the post-crisis effect of the treated group. The control variables SVO_score, Risk_tolerance, MAAS_score and Decision_time, are continuous variables and centered that represent the SVO score, the risk score, the MAAS score respectively and the time spent in the asset allocation task. The continuous variable Age is the age of the subject. Study represents the field of study (=1 for literature or arts, =2 for economics or management, =3 for scientific, =4 for others). Robust-Cluster Standard errors in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$.

Table 7-E: Investment in green and brown assets (RE panel regression with filter Age <= 24)

	Green (1)	Brown (2)	Green (3)	Brown (4)
Crisis	-13.01***	-8.274***	-13.08***	-8.635***
	(1.790)	(2.251)	(1.829)	(2.211)
Treatment	2.190	1.051	0.444	-0.955
	(3.103)	(3.340)	(2.975)	(3.221)
Crisis * Treatment	5.588*	1.330	5.587*	1.325
	(2.380)	(3.099)	(2.387)	(3.108)
SVO_score			12.00+	-6.596
			(6.977)	(6.739)
Risk_tolerance			1.791*	1.654*
			(0.729)	(0.729)
MAAS_score			-0.190	0.0731
			(0.141)	(0.133)

Female			1.838	-3.386
			(2.982)	(2.826)
Age			0.690	0.343
			(0.717)	(0.745)
2.study			-4.112	12.24+
			(7.921)	(6.786)
3.study			-3.200	4.711
			(7.910)	(6.747)
4.study			0.748	9.325
			(7.999)	(6.660)
Decision_time			-0.00839	-0.0477
			(0.0388)	(0.0391)
_cons	35.81***	29.10***	38.58***	23.63***
	(1.916)	(2.258)	(7.916)	(6.466)
N	1430	1430	1430	1430
R-squ - overall	0.061	0.028	0.120	0.106
Control variables	No	No	Yes	Yes

Notes: Table 7-E presents a random effect panel regression with cluster-robust standard errors at the participant level (for correlation between observations within cluster).We have selected only subjects who are 24 years of age or younger. In columns (1) and (3) ((2) and (4)), the dependent variable is the percentage invested by participants in the green asset (brown_asset). Independent variables are the binary variables, Crisis (= to 1 for crisis periods (periods 5 to 10)), Treatment (= to 1 for meditation group). The interaction variable Crisis × Treatment captures the post-crisis effect of the treated group. The control variables SVO_score, Risk_tolerance, MAAS_score and Decision_time, are continuous variables and centered that represent the SVO score, the risk score, the MAAS score respectively and the time spent in the asset allocation task. The continuous variable Age is the age of the subject. Study represents the field of study (=1 for literature or arts, =2 for economics or management, =3 for scientific, =4 for others). Robust-Cluster Standard errors in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$.

Table 7-F: Investment in green and brown assets (RE panel regression with filter Age <= 23)

	Green (1)	Brown (2)	Green (3)	Brown (4)
Crisis	-12.79***	-8.257***	-12.81***	-8.429***
	(2.029)	(2.301)	(2.075)	(2.269)
Treatment	2.787	1.102	1.520	-0.748
	(3.410)	(3.586)	(3.235)	(3.472)
Crisis * Treatment	5.121*	1.547	5.120*	1.534
	(2.600)	(3.260)	(2.609)	(3.271)
SVO_score			12.34	-5.173
			(7.595)	(7.411)
Risk_tolerance			1.932*	1.938*
			(0.863)	(0.799)
MAAS_score			-0.217	0.0494
			(0.155)	(0.151)
Female			0.342	-1.609
			(3.127)	(2.740)
Age			0.240	-0.436
			(0.904)	(0.853)
2.study			-1.557	9.688
			(8.481)	(7.481)
3.study			-0.856	3.521
			(8.434)	(7.273)
4.study			2.250	8.130
			(8.303)	(7.131)
Decision_time			-0.00233	-0.0224
			(0.0397)	(0.0406)
_cons	35.20***	28.15***	35.43***	22.00***

	(2.113)	(2.504)	(8.549)	(7.053)
N	1230	1230	1230	1230
R-squ - overall	0.060	0.028	0.123	0.099
Control variables	No	No	Yes	Yes

Notes: Table 7-F presents a random effect panel regression with cluster-robust standard errors at the participant level (for correlation between observations within cluster).We have selected only subjects who are 23 years of age or younger. In columns (1) and (3) ((2) and (4)), the dependent variable is the percentage invested by participants in the green asset (brown_asset). Independent variables are the binary variables, Crisis (= to 1 for crisis periods (periods 5 to 10)), Treatment (= to 1 for meditation group). The interaction variable Crisis × Treatment captures the post-crisis effect of the treated group. The control variables SVO_score, Risk_tolerance, MAAS_score and Decision_time, are continuous variables and centered that represent the SVO score, the risk score, the MAAS score respectively and the time spent in the asset allocation task. The continuous variable Age is the age of the subject. Study represents the field of study (=1 for literature or arts, =2 for economics or management, =3 for scientific, =4 for others). Robust-Cluster Standard errors in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$.

Table 7-G: Investment in green and brown assets (RE panel regression with filter Age <= 30 and without passive subjects)

	Green (1)	Brown (2)	Green (3)	Brown (4)
Crisis	-12.17***	-6.798***	-12.17***	-7.217***
	(1.622)	(1.777)	(1.658)	(1.744)
Treatment	1.829	3.529	0.637	2.032
	(2.641)	(2.897)	(2.509)	(2.801)
Crisis * Treatment	4.678*	-0.303	4.678*	-0.267
	(2.144)	(2.545)	(2.150)	(2.544)
SVO_score			11.02*	-2.187
			(4.992)	(5.199)

Risk_tolerance			1.829***	1.543*
			(0.615)	(0.620)
MAAS_score			-0.0556	0.0267
			(0.124)	(0.116)
Female			3.748	-3.906
			(2.420)	(2.494)
Age			0.410	0.130
			(0.347)	(0.386)
2.study			-3.735	11.74+
			(8.057)	(6.485)
3.study			-4.223	5.433
			(8.069)	(6.511)
4.study			-0.321	7.222
			(7.995)	(6.447)
Decision_time			0.000233	-0.0564
			(0.0330)	(0.0358)
_cons	35.26***	27.10***	36.84***	21.93***
	(1.718)	(2.001)	(7.976)	(6.176)
N	1860	1860	1860	1860
R-squ - overall	0.057	0.028	0.115	0.097
Control variables	No	No	Yes	Yes

Notes: Table 7-G presents a random effect panel regression with cluster-robust standard errors at the participant level (for correlation between observations within cluster).We have selected only subjects who are 30 years of age or younger. *And we ruled out the two passive subjects who did not change the proportion of investment during the whole market (subjects numbered 32 and 180).* In columns (1) and (3) ((2) and (4)), the dependent variable is the percentage invested by participants in the green asset (brown_asset). Independent variables are the binary variables, Crisis (= to 1 for crisis periods (periods 5 to 10)), Treatment (= to 1 for meditation group). The interaction variable Crisis × Treatment captures the post-crisis effect of the treated group. The control variables SVO_score, Risk_tolerance, MAAS_score and Decision_time, are continuous variables and centered that represent the SVO score, the risk score, the MAAS score respectively and the time spent in the asset

allocation task. The continuous variable Age is the age of the subject. Study represents the field of study (=1 for literature or arts, =2 for economics or management, =3 for scientific, =4 for others). Robust-Cluster Standard errors in parentheses. + p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.005.

Table 7-H: Investment in green and brown assets (without the observations where the subject has reached the time limit, 23 observations from 1880)

	Green (1)	Brown (2)	Cash (3)	Green (4)	Brown (5)	Cash (6)
Crisis	-11.94***	-6.645***	18.59***	-11.85***	-7.142***	18.97***
	(1.623)	(1.749)	(2.610)	(1.645)	(1.708)	(2.572)
Treatment	1.844	3.332	-5.175+	0.691	1.866	-2.543
	(2.640)	(2.886)	(2.933)	(2.512)	(2.804)	(2.823)
Crisis Treatment	4.420*	-0.493	-3.928	4.410*	-0.424	-3.985
	(2.153)	(2.549)	(3.606)	(2.161)	(2.550)	(3.614)
SVO_score				10.32*	-2.464	-7.868
				(4.854)	(5.087)	(5.265)
Risk_tolerance				1.792***	1.498*	-3.290***
				(0.608)	(0.618)	(0.676)
MAAS_score				-0.0601	0.00277	0.0569
				(0.120)	(0.114)	(0.136)
Female				3.761	-3.720	-0.0419
				(2.423)	(2.509)	(3.101)
Age				0.465	0.237	-0.702
				(0.337)	(0.381)	(0.473)
2.study				-3.744	11.74+	-7.982
				(8.060)	(6.467)	(6.049)
3.study				-4.352	5.378	-1.016

				(8.072)	(6.485)	(6.047)
4.study				0.0500	7.720	-7.764
				(7.991)	(6.429)	(6.364)
Decision_time				0.0137	-0.0721+	0.0553
				(0.0367)	(0.0424)	(0.0517)
_cons	35.29***	27.27***	37.43***	36.79***	21.96***	41.24***
	(1.698)	(1.962)	(2.180)	(7.983)	(6.150)	(5.878)
N	1857	1857	1857	1857	1857	1857
R-squ - overall	0.014	0.008	0.032	0.110	0.113	0.240
Control variables	No	No	No	Yes	Yes	Yes

Notes: Table 7-H presents a random effect panel regression with cluster-robust standard errors at the participant level (for correlation between observations within cluster).We have selected only subjects who are 30 years of age or younger.

And we ruled out the observations where the subject reached the time limit (60 seconds per period), in total we eliminated 23 observations from 1880 (18 observations in the meditation group and 5 observations in the control group).

In columns (1) and (3) ((2) and (4)), the dependent variable is the percentage invested by participants in the green asset (brown_asset). Independent variables are the binary variables, Crisis (= to 1 for crisis periods (periods 5 to 10)), Treatment (= to 1 for meditation group). The interaction variable Crisis × Treatment captures the post-crisis effect of the treated group. The control variables SVO_score, Risk_tolerance, MAAS_score and Decision_time, are continuous variables and centered that represent the SVO score, the risk score, the MAAS score respectively and the time spent in the asset allocation task. The continuous variable Age is the age of the subject. Study represents the field of study (=1 for literature or arts, =2 for economics or management, =3 for scientific, =4 for others). Robust-Cluster Standard errors in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$.

Table 8-A: Impact of the crisis on the investment difference in green and brown assets (Invest_green – Invest_brown) - (metobit model with filter Age <= 30)

Dependent variable (Y) = diff_investgreen_investbrown

	Meditation (1)	Control (2)	Meditation (3)	Control (4)
Crisis	-4.765	-13.92***	-5.846+	-12.68***
	(3.167)	(3.498)	(3.337)	(3.691)
SVO_score			71.81***	-2.324
			(19.67)	(20.43)
Risk_tolerance			1.730	4.363*
			(2.067)	(1.912)
MAAS_score			-0.625	0.273
			(0.462)	(0.325)
Female			0.913	20.82*
			(9.063)	(9.209)
Age			-0.562	2.636+
			(1.399)	(1.464)
2.study			-7.281	-23.77
			(27.85)	(23.22)
3.study			-16.35	-19.79
			(28.45)	(23.07)
4.study			-14.98	-3.672
			(28.41)	(22.75)
Decision_time			-0.155	0.166
			(0.106)	(0.120)
_cons	-17.27*	-12.34*	-8.578	-8.261
	(7.493)	(5.878)	(27.62)	(22.03)
N	970	910	970	910
Log pseudolikelihood	-2051.45	-1766.08	-2045.05	-1758.96

Notes: Table 8-A presents *a metobit regression*. We have selected only subjects who are 30 years of age or younger. The dependent variable is the investment difference in green and brown assets: diff_investgreen_investbrown = (Invest_green – Invest_brown). In regressions 1 and 3 we selected only the

Meditation group and in regressions 2 and 4 only the control group. Independent variables are the binary variables, Crisis (= to 1 for crisis periods (periods 5 to 10)), Treatment (= to 1 for meditation group). The control variables SVO_score, Risk_tolerance, MAAS_score and Decision_time, are continuous variables and centered that represent the SVO score, the risk score, the MAAS score respectively and the time spent in the asset allocation task. The continuous variable Age is the age of the subject. Study represents the field of study (=1 for literature or arts, =2 for economics or management, =3 for scientific, =4 for others). Robust-Cluster Standard errors in parentheses. + p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.005.

Table 8-B: Impact of the crisis on the investment difference in green and brown assets (Invest_green – Invest_brown) - (RE panel regression with filter <= 26)

Dependent variable (Y) = diff_investgreen_investbrown

	Meditation	Control	Meditation	Control
	(1)	(2)	(3)	(4)
Crisis	-0.349	-5.129*	-0.216	-4.315+
	(2.231)	(2.302)	(2.320)	(2.335)
SVO_score			17.85	13.55
			(14.41)	(12.49)
Risk_tolerance			0.441	0.142
			(2.027)	(1.283)
MAAS_score			-0.146	-0.109
			(0.350)	(0.248)
Female			4.324	7.388
			(6.119)	(6.961)
Age			-2.297+	2.439+
			(1.272)	(1.336)
2.study			-16.99	-23.51
			(20.62)	(17.74)
3.study			-17.11	-10.09
			(21.54)	(17.36)
4.study			-11.72	-10.72

			(21.18)	(17.10)
Decision_time			0.0194	0.107
			(0.0714)	(0.0754)
_cons	6.033	7.347*	15.63	18.50
	(4.013)	(3.253)	(19.92)	(17.70)
N	860	790	860	790
R-squ - overall	0.000	0.006	0.048	0.099

Notes: Table 8-B presents a random effect panel regression with cluster-robust standard errors at the participant level (for correlation between observations within cluster).We have selected only subjects who are 26 years of age or younger. The dependent variable is the investment difference in green and brown assets: diff_investgreen_investbrown = (Invest_green – Invest_brown). In regressions 1 and 3 we selected only the Meditation group and in regressions 2 and 4 only the control group. Independent variables are the binary variables, Crisis (= to 1 for crisis periods (periods 5 to 10)), Treatment (= to 1 for meditation group). The control variables SVO_score, Risk_tolerance, MAAS_score and Decision_time, are continuous variables and centered that represent the SVO score, the risk score, the MAAS score respectively and the time spent in the asset allocation task. The continuous variable Age is the age of the subject. Study represents the field of study (=1 for literature or arts, =2 for economics or management, =3 for scientific, =4 for others). Robust-Cluster Standard errors in parentheses. + p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.005.

Table 8-C: Impact of the crisis on the investment difference in green and brown assets (Invest_green – Invest_brown) - (RE panel regression with filter Age <= 24)

Dependent variable (Y) = diff_investgreen_investbrown

	Meditation (1)	Control (2)	Meditation (3)	Control (4)
Crisis	-0.480	-4.738+	-0.661	-3.781
	(2.467)	(2.613)	(2.579)	(2.622)
SVO_score			23.51	17.53
			(16.76)	(14.64)
Risk_tolerance			0.952	-0.0862
			(2.213)	(1.394)

MAAS_score			-0.286	-0.199
			(0.357)	(0.276)
Female			1.414	7.685
			(6.837)	(7.129)
Age			-2.977	3.119
			(2.123)	(1.921)
2.study			-20.77	-21.86
			(21.45)	(17.82)
3.study			-14.31	-10.81
			(22.16)	(17.51)
4.study			-15.96	-13.60
			(23.54)	(17.28)
Decision_time			-0.0236	0.126
			(0.0791)	(0.0803)
_cons	7.851+	6.712+	17.64	20.12
	(4.372)	(3.491)	(20.08)	(18.44)
N	750	680	750	680
R-squ - overall	0.000	0.005	0.050	0.091

Notes: Table 8-C presents a random effect panel regression with cluster-robust standard errors at the participant level (for correlation between observations within cluster).We have selected only subjects who are 24 years of age or younger. The dependent variable is the investment difference in green and brown assets: diff_investgreen_investbrown = (Invest_green – Invest_brown). In regressions 1 and 3 we selected only the Meditation group and in regressions 2 and 4 only the control group. Independent variables are the binary variables, Crisis (= to 1 for crisis periods (periods 5 to 10)), Treatment (= to 1 for meditation group). The control variables SVO_score, Risk_tolerance, MAAS_score and Decision_time, are continuous variables and centered that represent the SVO score, the risk score, the MAAS score respectively and the time spent in the asset allocation task. The continuous variable Age is the age of the subject. Study represents the field of study (=1 for literature or arts, =2 for economics or management, =3 for scientific, =4 for others). Robust-Cluster Standard errors in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$.

Table 8-D: Impact of the crisis on the investment difference in green and brown assets (Invest_green – Invest_brown) - (RE panel regression with filter Age <= 23)

Dependent variable (Y) = diff_investgreen_investbrown

	Meditation (1)	Control (2)	Meditation (3)	Control (4)
Crisis	-0.961	-4.536	-1.306	-3.696
	(2.733)	(2.883)	(2.858)	(2.928)
SVO_score			18.46	16.62
			(17.66)	(16.50)
Risk_tolerance			1.102	-1.278
			(2.476)	(1.419)
MAAS_score			-0.266	-0.134
			(0.401)	(0.337)
Female			-2.273	4.049
			(7.255)	(6.630)
Age			-3.531	4.736*
			(2.541)	(2.251)
2.study			-8.469	-17.90
			(23.96)	(18.20)
3.study			-1.632	-11.32
			(24.89)	(17.62)
4.study			-4.857	-16.89
			(25.06)	(17.31)
Decision_time			-0.0419	0.109
			(0.0830)	(0.0861)
_cons	8.734+	7.050+	7.174	25.80
	(4.658)	(3.845)	(23.23)	(19.29)
N	670	560	670	560
R-squ - overall	0.000	0.005	0.044	0.112

Notes: Table 8-D presents a random effect panel regression with cluster-robust standard errors at the participant level (for correlation between observations within cluster).We have selected only subjects who are 23 years of age or younger. The dependent variable is the investment difference in green and brown assets: diff_investgreen_investbrown = (Invest_green – Invest_brown). In regressions 1 and 3 we selected only the Meditation group and in regressions 2 and 4 only the control group. Independent variables are the binary variables, Crisis (= to 1 for crisis periods (periods 5 to 10)), Treatment (= to 1 for meditation group). The control variables SVO_score, Risk_tolerance, MAAS_score and Decision_time, are continuous variables and centered that represent the SVO score, the risk score, the MAAS score respectively and the time spent in the asset allocation task. The continuous variable Age is the age of the subject. Study represents the field of study (=1 for literature or arts, =2 for economics or management, =3 for scientific, =4 for others). Robust-Cluster Standard errors in parentheses. + p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.005.

Table 8-E: Impact of the crisis on Green preference (= Invest_green – Invest_brown) - (RE panel regression with filter Age <= 30 and without passive subjects)
Dependent variable (Y) = diff_investgreen_investbrown

	Meditation (1)	Control (2)	Meditation (3)	Control (4)
Crisis	-0.392	-5.373*	-0.354	-4.429*
	(2.100)	(2.169)	(2.199)	(2.236)
SVO_score			20.73	6.169
			(12.92)	(11.79)
Risk_tolerance			-0.0105	0.409
			(1.676)	(1.136)
MAAS_score			-0.164	-0.0906
			(0.317)	(0.224)
Female			4.229	10.44+
			(5.390)	(5.542)
Age			-0.688	2.012*

			(0.764)	(0.837)
2.study			-15.04	-22.54
			(19.65)	(17.90)
3.study			-14.53	-10.58
			(20.47)	(17.44)
4.study			-8.528	-10.42
			(19.75)	(17.23)
Decision_time			0.00550	0.127
			(0.0687)	(0.0786)
_cons	6.462+	8.162**	16.24	16.02
	(3.620)	(3.009)	(19.27)	(17.00)
N	970	890	970	890
R-squ - overall	0.000	0.007	0.038	0.098

Notes: Table 8-E presents a random effect panel regression with cluster-robust standard errors at the participant level (for correlation between observations within cluster).We have selected only subjects who are 30 years of age or younger. *And we ruled out the two passive subjects who did not change the proportion of investment during the market (subject 32 and 180).* The dependent variable is the investment difference in green and brown assets: diff_investgreen_investbrown = (Invest_green – Invest_brown). In regressions 1 and 3 we selected only the Meditation group and in regressions 2 and 4 only the control group. Independent variables are the binary variables, Crisis (= to 1 for crisis periods (periods 5 to 10)), Treatment (= to 1 for meditation group). The control variables SVO_score, Risk_tolerance, MAAS_score and Decision_time, are continuous variables and centered that represent the SVO score, the risk score, the MAAS score respectively and the time spent in the asset allocation task. The continuous variable Age is the age of the subject. Study represents the field of study (=1 for literature or arts, =2 for economics or management, =3 for scientific, =4 for others). Robust-Cluster Standard errors in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$.

Table 9-A: Time Decision by Period and Treatment

	Average time decision (in seconds) by period and treatment				Number of subjects who reached the maximum limit (60 seconds)	
Period	**Treatment (Mindfulness)**	**Control (Mind-wandering)**	**z**	**p-value**	**Treatment (Mindfulness)**	**Control (Mind-wandering)**
1	33.49	31.08	-1.154	0.248	8	5
2	28.88	17.87	-5.557	0.000	6	0
3	19.26	16.42	-1.508	0.131	1	0
4	17.91	12.97	-2.891	0.004	0	0
5	17.15	11.24	-4.197	0.000	0	0
6	18.60	10.78	-5.209	0.000	1	0
7	17.08	11.74	-3.552	0.000	0	0
8	17.21	10.71	-4.827	0.000	0	0
9	15.46	9.64	-3.767	0.000	1	0
10	14.32	9.93	-3.416	0.001	1	0
Sum	**199.36**	**142.37**		**Total**	**18**	**5**
Average	**19.94**	**14.24**				

Notes: The sample includes 188 student subjects (97 in treatment and 91 in control). Table 9 - A presents the average time spent in the investment game and the number of subjects who reached the maximum time limit (60 seconds) for each period and treatment condition. # The z-statistics and the p-values of two-sided Mann-Whitney-U tests are shown. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$.

Table 10: Check of selection bias - Average Treatment Effect (ATE).

To mitigate potential selection bias in our subject pool, we use the Average Treatment effect (ATE) test with the AIPW (Augmented Inverse Probability Weighting) method.
The Average Treatment Effect (ATE) represents the average causal impact of a treatment on an outcome variable within a population. Augmented Inverse Probability Weighting (AIPW) is a statistical technique employed in observational studies to estimate the ATE by addressing confounding and minimizing selection bias through propensity score adjustment. The propensity score is the probability of receiving the treatment conditional on observed covariates. In the context of AIPW, the ATE is estimated by reweighting the observed data using inverse probability weights derived from the estimated propensity scores.

The ATE analysis suggests the absence of selection bias in our experimental design, substantiating the assertion that the observed treatment effect is attributable to the treatment itself. In reference to our primary findings, we observe that: (1) the meditation group displays a lower tendency for disinvestment in green assets during crises relative to the control group, (2) participants engaged in meditation exhibit a statistically significant prolongation in decision-making time during the core investment task, compared to control subjects, and (3) the Social Value Orientation (SVO) score is significantly higher in the meditation group than in the mind-wandering group. Indeed, following the implementation of the ATE test employing the Augmented Inverse Probability Weighting (AIPW) method, the results persist in their statistical significance. The coefficient of the interaction term (*Crisis x Treatment)* in Table 10 - Panel A - column 1 remains statistically significant at the 10% level (confirming the findings presented in Table 7, model (1): coeff(Crisis x Treatment) significant at the 5% level). Furthermore, the coefficients associated with the treatment variable in Table 10 for SVO and Decision Time (Panel B - columns 1 and 2) persist in demonstrating statistical significance at the 5% level. This corroborates the findings articulated in Table 3, wherein we found a significant difference in *SVO_score* and *decision_time* between the two experimental groups.

Panel A: ATE with AIPW applied to Green, Brown and Cash investment

	Green	Brown	Cash	Green	Brown	Cash
	(1)	(2)	(3)	(4)	(5)	(6)
Crisis	-5.066**	-6.260*	11.33***	-11.86***	-6.467***	18.33***
	(1.860)	(2.522)	(3.131)	(1.693)	(2.167)	(2.894)
Treatment	2.584	1.703	-4.287	2.584	1.703	-4.287
	(2.599)	(2.874)	(3.032)	(2.598)	(2.873)	(3.031)
Crisis x Treatment	4.047+	-1.090	-2.957	4.047+	-1.090	-2.957
	(2.237)	(2.845)	(3.854)	(2.237)	(2.844)	(3.853)
Period	-1.359***	-0.0414	1.400***			
	(0.229)	(0.291)	(0.352)			
Female	2.019	-6.859*	4.840	2.019	-6.859*	4.840
	(2.564)	(2.819)	(3.311)	(2.563)	(2.818)	(3.310)
Age Centered	0.188	-0.0828	-0.105	0.188	-0.0828	-0.105
	(0.340)	(0.384)	(0.504)	(0.340)	(0.384)	(0.504)
2.study	-3.393	13.08+	-9.688	-3.393	13.08+	-9.688
	(8.653)	(6.974)	(8.007)	(8.650)	(6.972)	(8.005)
3.study	-3.687	6.810	-3.123	-3.687	6.810	-3.123
	(8.685)	(6.942)	(7.884)	(8.682)	(6.941)	(7.882)
4.study	0.896	8.524	-9.420	0.896	8.524	-9.420
	(8.627)	(7.073)	(8.314)	(8.625)	(7.071)	(8.312)
_cons	38.69***	22.95***	38.37***	35.97***	22.86***	41.17***
	(8.739)	(6.593)	(8.054)	(8.771)	(6.584)	(8.026)
N	1880	1880	1880	1880	1880	1880
R-sq	0.078	0.072	0.117	0.071	0.072	0.112
adj. R-sq	0.074	0.068	0.113	0.067	0.068	0.109

Notes: Table 10 - Panel A, presents an OLS with cluster-robust standard errors at the participant level (for correlation between observations within cluster), while accounting for inverse weights generated from propensity scores. Additionally, this model incorporates the consideration of inverse weights derived from propensity scores. We have selected only subjects who are 30 years of age or younger. In columns (1 and 4), (2

and 5) and (3 and 6) the dependent variable is the percentage invested by participants in the green_asset, brown_asset and cash_asset, respectively. Independent variables are the binary variables, Crisis (= to 1 for crisis periods (periods 5 to 10)), Treatment (= to 1 for meditation group). The interaction variable Crisis Treatment captures the post-crisis effect of the treated group. The continuous variable Age is the age of the subject. Study represents the field of study (=1 for literature or arts, =2 for economics or management, =3 for scientific, =4 for others). Robust-Cluster Standard errors in parentheses.+ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.005.

Panel B: ATE with AIPW method applied to SVO_score ans Decision_time in investment task

	(1)	(2)
	SVO_score	Decision_time
1.treatment	0.109***	5.355***
	(0.0337)	(0.572)
Female	0.0649+	-0.376
	(0.0349)	(0.591)
agecentered	-0.00567	-0.0317
	(0.00666)	(0.0999)
2.study	0.01000	3.477**
	(0.0642)	(1.337)
3.study	0.00353	2.339+
	(0.0651)	(1.377)
4.study	0.0318	1.410
	(0.0669)	(1.396)
_cons	0.298***	-5.173***
	(0.0615)	(1.320)
N	188	1880
R-sq	0.080	0.052
adj. R-sq	0.050	0.049

Notes: Table 10 - Panel B, presents an OLS with cluster-robust standard errors at the participant level (for correlation between observations within cluster), while accounting for inverse weights generated from propensity scores. Additionally, this model incorporates the consideration of inverse weights derived from propensity scores. We have selected only subjects who are 30 years of age or younger. Dependent variables are the SVO_score (column 1) and the time taken by participants to make a decision in each period (column 1). Treatment (= to 1 for meditation group). The continuous variable Age is the age of the subject. Study represents the field of study (=1 for literature or arts, =2 for economics or management, =3 for scientific, =4 for others). Robust-Cluster Standard errors in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$.