

UNRAVELING THE ROLE OF ENVIRONMENTAL EMOTIONAL CONNECTEDNESS AND SUSTAINABLE RETURNS IN GREEN FINANCE DECISIONS: A COMPARATIVE ANALYSIS

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Article History:

■ received 18 September 2025

■ accepted 15 June 2026

Abstract. The study aims to identify the underlying forces shaping investors' green financing decisions, specifically examining whether these decisions are driven by emotional connectedness to the environment or by the pursuit of sustainable financial returns. These latent motivations may influence investment behavior either consciously or unconsciously. In addition, the study analyzes investors' preferences under trade-off conditions involving environmental emotional connectedness, expected sustainable returns, and investment duration. To investigate these factors, the study adopts a controlled experimental approach, employing a scenario-based experiment for individual investors and a field experiment involving financial professionals. The survey instrument is designed around six structured trade-off scenarios that capture variations in environmental emotional attachment, return expectations, and investment horizons. Empirical analysis using panel logistic regression and the Kruskal–Wallis test reveals that sustainable return emerges as the dominant determinant of green investment decisions. The findings indicate that although investors may exhibit emotional concern for environmental issues, such emotional attachment alone is insufficient to motivate green investment behavior. Ultimately, investment decisions are primarily guided by expected financial returns rather than environmental emotional connectedness.

Keywords: green investment decision, emotional connection to the environment, sustainable returns, investment duration, investment preferences, investor behavior.

JEL Classification: D91, G11, G41, Q56.

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1. Introduction

Cepni et al. (2022) revealed that concerns about climate change are growing. As a result, developed economies consider it crucial to shift financial flows toward green investments (Kreibiehl et al., 2022). With the transition in the business paradigm from a sole profit-driven approach to a holistic perspective that integrates profit, people, and the planet, green investment has become a critical concern in business and accounting. Many firms seek to attract potential shareholders by presenting green investment plans as an opportunity for sustainable capital allocation. Green investment, in simple terms, refers to business activities that benefit the environment or at least do not cause environmental harm (Testa et al., 2016; Berliner

& Prakash, 2013; Minatti Ferreira et al., 2014). Some authors suggest that green investments can provide firms with a competitive advantage, enhance corporate reputation, and increase overall value (Bonifant et al., 1995; Bagur-Femenías et al., 2015). As a result, numerous studies have been conducted to explore the performance and constraints of green investments.

Apart from financial literacy (Anderson & Robinson, 2021) and investment performance (Døskeland & Pedersen, 2016), emotions can be a significant driver of green investment. Pro-environmental behavior, such as the careful use of natural resources and recycling, involves two types of emotions: eco-anxiety and a connection with nature, both of which influence investor behavior (Mackay & Schmitt, 2019; Verplanken et al., 2020; Mayer & Frantz, 2004). Furthermore, Clayton (2020) explains that eco-anxiety consists of negative emotions such as anxiety, fear, and concern. In contrast, Cervinka et al. (2012) clarify that a connection with nature reflects positive emotions toward the environment and a sense of environmental well-being.

According to behavioral finance, if any investor thinks about the environment and invests in green equity funds, then emotions would be considered a driving force behind green investment (Ackert et al., 2003; Statman, 2018). Several various factors can influence individual preferences in green investment, like financial returns, emotional connections with the environment, and personal biases (Sayce et al., 2007). Financial and non-financial variables can be valuable for different kinds of investors. Emotions may significantly affect the investor's investment preferences and decision-making, so analyzing the emotions of investors can help to forecast their potential behavior in financial markets (Duxbury et al., 2020).

Many researchers have conducted studies exploring various aspects of green finance investment, aligning with their respective research objectives and goals. For example, Al Dayeh (2024) examines individual investors' preferences; while Cortez et al. (2022) and Chariri et al. (2018) investigate the relationship between green investment and firm performance. Additionally, Hervé and Marsat (2023) explore emotional connectedness to nature in green investment decisions; whereas Gabbi and Zanotti (2019) and Born et al. (2024) evaluate the impact of emotions on financial decision-making. Finally, Hasanuddin et al. (2024) examine the link between green investment and business growth. These studies provide valuable and impactful insights into green investment, contributing to a deeper understanding of its significance in financial decision-making.

With the growth of the green economy, investments in green projects could be influenced by various factors. While green projects are initiated for environmental sustainability, but investors invest in these projects under the obsession of an emotional connection with the environment, which may not always be genuine. It is possible that they have other concerns, such as sustainable returns, risk aversion, and long-term investment opportunities. Sayce et al. (2007) suggest financial returns and emotions both can influence the investment decision. Duchene et al. (2022) argue that investors do not take risks solely for positive environmental outcomes; rather, they seek higher returns in exchange for higher risks. Similarly, Brodback et al. (2020) and Bansal et al. (2022) suggest that poor financial performance, such as lower returns, diminishes investors' emotions and discourages investment in social and environmental projects. This implies that investment preferences toward social and environmental causes depend on market conditions. When favorable conditions offer higher expected returns, investors are more likely to engage in Socially Responsible Investment (SRI). Conversely, in unfavorable conditions, investors tend to avoid SRI.

These studies raise an important question: Do all green investments inherently carry a profit motive? The true motivation behind green investments whether driven by emotions

or the expectation of sustainable returns remains unclear, and no research has fully explored this issue.

In particular, the literature lacks empirical evidence that unravels whether investors engage in green project investments due to an emotional connectedness with the environment or because of their belief in long-term sustainable and secure financial returns. Prior studies generally treat environmental concern and financial performance as complementary factors, without explicitly examining which of these motivations dominates actual investment behavior. However, this study aims to address and clarify this perspective. This study aims to explore the hidden force behind investments in green projects. The study investigates which factor is more dominant environmental emotional connectedness or sustainable returns in green investments. Furthermore, it examines investor preferences in green finance investments under the trade-off conditions between environmental emotional connectedness, sustainable returns, and investment duration. A survey-based experiment and a field experiment were conducted to collect data from individuals and professionals. Panel logistic regression and the Kruskal–Wallis statistical approach were used to test the hypotheses. The study is structured as follows: Section 2 presents the literature review, while Section 3 provides a detailed explanation of the experimental design, including the experiment settings, hypotheses, and analysis. Finally, the last section summarizes the key findings.

2. Literature review

2.1. Sustainable returns and investment decisions

The fundamental driver of investor behavior and actions is profit motivation. While some investors prioritize profit exclusively, others consider non-financial variables in their decisions. The profit motive serves as the primary driving force behind economic activity. If an asset is evaluated solely based on profit potential, investment decision-making becomes more streamlined, as investors simply select the option offering the highest profit (Kagan, 2020). However, making investment decisions based solely on profit has both benefits and limitations. The profit motive encourages innovation within companies, leading to higher returns. Additionally, it helps firms increase their income and boost share performance, aligning with the goals of investors and shareholders. When investment decisions are based purely on profit motives, past investment returns influence future investor involvement. If an investor has earned high profits from previous investments, they are likely to be more motivated to invest in new projects. A greater interest in investment activities not only benefits individual investors but also enhances the wealth of firms and the overall market (Derwall et al., 2011).

According to Wigfield and Eccles (2000), expectancy-value theory is a psychological framework that explains how motivation, behavior, and attitudes drive individuals to take action based on the expected outcome, particularly when that outcome holds significant value for them. This study also applies expectancy-value theory, as it suggests that investors make financial decisions based on their desired outcomes. For example, an environmentally conscious investor will prefer environmentally friendly projects, whereas a profit-driven investor will prioritize high-profit projects. Furthermore, Fulton explains that sustainable investments provide long-term benefits, leading investors to favor sustainable assets to achieve long-term value. Since investors expect long-term benefits from sustainable investments, researchers suggest designing task-based simulation questions in surveys to help standardize investment returns in the available options for research studies.

A controversy persists in the literature regarding the capacity of sustainable investments to produce competitive financial returns. Some researchers contend that sustainable finance inherently implies trade-offs between financial performance and social or environmental outcomes. According to Weber and Feltham (2016), sustainable finance gained popularity after the weaknesses of traditional finance models were exposed during the 2008 financial crisis. As a result, sustainable finance products such as green bonds, social impact funds, and ESG (Environmental, Social, and Governance) criteria evolved as crucial tools for reconciling financial returns with environmental sustainability objectives.

A number of studies suggest a positive relationship between environmental performance and financial performance. Empirical evidence indicates that superior environmental performance leads to greater financial performance as well (Molina-Azorín et al., 2009; Albertini, 2013; Dixon-Fowler et al., 2013; Endrikat et al., 2014; Galama & Scholtens, 2021). Furthermore, Freeman and Evan (1990), Porter and van der Linde (1995), and Ambec and Lanoie (2008) confirm that this association is reinforced by claims suggesting that strengthening environmental performance can provide a competitive advantage to enterprises and reduce expenses, thereby improving overall financial performance. Bachelet et al. (2019) analyze the returns, volatility, and liquidity of green bonds, emphasizing the significant value of third-party verification in private and institutional the issuances. This factor is crucial for private issuers, as green bonds issued by corporations generally display inferior qualities compared to conventional bonds regarding liquidity and volatility, and entail interest rates that exceed those of their traditional equivalents.

A number of studies examine how informational efficiency is reflected in stock prices within the industry. To analyze this, authors assess the impact of environmental disasters on the stock prices of oil companies (e.g., Patten & Nance, 1998; Capelle-Blancard & Laguna, 2010). Zhou and Cui (2019) undertake empirical study on Chinese listed corporations that issue green bonds, examining the impact of green bond issuance on corporate performance. Their findings indicate that the announcements of green bond issuances positively influence the company's stock price, profitability, operational performance, as well as its innovation capability and corporate social responsibility (CSR) policy.

When investor preferences shift toward green investments, the returns on green assets naturally increase, and even the market portfolio must adapt to this change. Pedersen et al. (2021) present another perspective, explaining that to achieve the ESG-efficient frontier, investors must navigate preferences and price implications for sustainable investing. Additionally, they face a trade-off between risk-adjusted returns and the degree of ESG integration. Furthermore, the authors highlight the existence of diverse types of investors regarding ESG preferences. They suggest that ESG-focused investors may outperform others if ESG factors contain security-relevant information that has not yet been recognized by the market.

A meta-analysis by Friede et al. (2015) shown that most studies identified a positive correlation between ESG integration and financial performance, challenging the belief that profitability must be compromised for sustainability. The transition to sustainable investing has been driven by increasing demand from investors that prioritize long-term stability and ethical issues.

ESG standards have proven essential to the sustainable finance movement. The literature indicates that including ESG issues into investment decisions might reduce risks related to environmental degradation, social unrest, and governance failures. Eccles et al. (2014) discovered that firms exhibiting comprehensive ESG performance generally experience reduced volatility and more consistent financial returns over the long run. The ESG framework, as

highlighted by Friede et al. (2015), underlines the importance of ethical considerations in investment decisions alongside profitability, rendering it an essential concern for institutional investors and firms pursuing sustainability.

The study explains that sustainable investment is not only associated with environmental and social responsibility but is also linked with investors' expectations regarding sustainable financial returns. According to Social Cognitive Theory, sustainable investment knowledge leads to more positive perceptions of sustainable investment returns through the mechanism of self-efficacy. This ultimately converts investors' decisions into a willingness to invest in environmental assets for long-term financial benefits along with environmental value (Cheng & Cao, 2025). Sustainable investment is viewed as a way to balance financial objectives with long-term value creation. The idea of sustainable returns emerges from this shift, suggesting that integrating sustainability factors can help investors achieve more stable and long-term financial outcomes while also supporting broader social and environmental goals (Alhamis, 2025).

H1: Investors are more likely to invest in green finance when they perceive them as providing sustainable returns.

2.2. Emotional connection and investment decision

With the expansion of literature, the emotional aspects of economic behavior are gaining more attention (Loewenstein, 2000; Elster, 1998; Thaler, 2000; Romer, 2000). Furthermore, Thaler (2000) suggests that emotions play an important role in the economic decision-making process. He also indicates the potential need for deeper research on this perspective, opening the door for researchers to study how investors' emotions affect financial decisions.

In order to analyze the relationship between financial returns and emotions, Yik et al. (2011) and Russell (1980, 2003) provided a combination of financial options and emotional signals, then employed the Affect Grid methodology to investigate. The effect of emotions on FX trading was investigated by Au et al. (2003). They found the opposite of what they were expecting: traders whose moods were positive performed worse than those whose moods were bad. Au et al. (2003) further explained that traders experiencing negative emotions tend to adopt a more conservative approach when making financial decisions. Similarly, Kuhnen and Knutson (2005) demonstrated that positive emotions enhance confidence, leading investors to believe that their financial decisions are optimal. In contrast, negative emotions, such as anxiety, produce the opposite effect. Moreover, an investor's past financial decisions can shape their emotions, subsequently influencing future investment choices.

Emotions are a driving force in stock market decision-making. Emotional factors inherently influence investors' choices to buy or sell stocks, as well as their risk aversion or risk-taking behavior. This argument is supported by Liu et al. (2016), Fenton-O'Creevy et al. (2011), and Shiv et al. (2005). Some researchers further argue that emotions also motivate individuals to either participate in or withdraw from gambling (Kushnir et al., 2016; Yip et al., 2019). Empirical evidence from neuroscience supports this argument by demonstrating that decision-making is not merely a logical process but is closely linked to brain regions involved in emotional processing. This indicates that decision-making and emotions are strongly interconnected rather than being separate processes (Lempert & Phelps, 2016; Bechara & Damasio, 2005; Mohr et al., 2010; Poppa & Bechara, 2018; Phelps et al., 2014).

Within intensifying fears regarding climate change (Cepni et al., 2022), developed economies regard an increase of financial resources directed towards green investments as imperative (Kreibiehl et al., 2022). Researchers argue that investors who prefer sustainable investments do not focus solely on profit. Instead, they conduct a holistic assessment to determine whether the investment aligns with ESG (Environmental, Social, and Governance) factors. Sustainable investing encourages investors to evaluate whether their investments benefit the environment and society, thereby considerably enhancing environmental well-being (Gutterman, 2021). Emotions such as guilt and communal guilt drive compensatory acts for harm to the environment (Ferguson & Branscombe, 2010; Mallett et al., 2013, 2021), whereas self-esteem encourages environmentally friendly behaviors perceived as worthy (Schmitt et al., 2018; Tabernero & Hernández, 2011). Empathy is regarded as a moral emotion frequently associated with the interests or welfare of society or others (Haidt et al., 2003).

Social emotions are feelings shaped by interpersonal connections and societal context, encompassing issues such as status, fairness, and attachment (Hareli & Parkinson, 2008). They arise from role obligations, status dynamics, and perceived evaluations by others (Hewitt, 2020). Empathy starts with considering the emotions of others, but self-esteem and pride relate to the perception of one's acts as acceptable. These emotions, fundamentally rooted in social contexts, substantially influence pro-environmental behaviors, such as green product consumption, environmental activism, recycling, and energy conservation.

Personal investment in green equity funds is increasing significantly and can be regarded as a pro-environmental action. Ackert et al. (2003) and Statman (2018) state behavioral finance refers to emotions as the vibrant determinant of investment decision-making. Two types of emotions, like eco-anxiety and connection to nature, influenced investors' decision-making regarding investments in green assets. Hervé and Marsat (2023) explore how strong emotional connections with nature or the environment influence financial decisions and support investments in green assets.

New research on non-financial incentives for sustainable investments among individual investors, like Gutsche et al. (2023) and Riedl and Smeets (2017), shows that emotional factors encouraging sustainable investments.

Lim et al. (2024) conduct a study in Germany and Japan using a survey-based experiment to analyze the impact of social emotions, such as self-esteem and empathy, on individual investors to make decisions about sustainable investment choices. He contends that these emotions drive investors to prioritize sustainable investments, even in the face of self-interest. This study pointed out that social emotions also have a significant role in promoting sustainable investing.

According to Peng and Kim (2026), external and international stimuli play a significant role in shaping individuals' green investment decisions by influencing both functional and emotional value perceptions. Environmental consciousness and environmental knowledge further enhance emotional value, which subsequently strengthens individuals' intention toward green purchasing behavior.

H2: Investors are more likely to invest in green finance due to their emotional connection to the environment.

H3: Investors investment preferences significantly vary under trade-off conditions between environmental emotional connectedness, sustainable return and investment duration.

3. Methodology

3.1. Experiment design

In the regard of research objectives, the experimental settings follow six trade-off scenarios involving the dimensions of environmental emotional connectedness, sustainable return, and investment duration, similar to the experiments conducted by Luce (1999), Pagnoncelli et al. (2012), and Willinger (2022) on trade-off analysis.

Two sample groups were selected for the experiment: one group comprises individual investors, analyzed to explore the behavior or trends after the revolution of green economy either they are more emotional than desired return in green finance decision making. The second group consists of finance professionals working in financial institutions, banks, and asset management companies in Yunnan province, China. The professionals were included because they are closely involved in real-world investment decision-making. Finance professionals are not investors themselves; rather, they were selected for the sample because they closely observe and understand investor behavior.

Following the scenario-based experiment and field experiment approach adopted in Kim and Jang (2014), this study engaged 300 individual investors in a scenario-based experiment, while 152 finance professionals participated in a field experiment. This diverse experimental approach was implemented to ensure that the findings align with the research objectives. Investment preferences were analyzed across six scenarios designed to reflect a trade-off between the three key dimensions: environmental emotional connectedness, sustainable return, and investment duration.

Similar to Willinger et al. (2022), who also examined three dimensions under trade-off conditions—using an attribute range of returns between 10% and 40% and risk between 0% and 50% in a laboratory setting. This study adopts a scenario-based approach, which requires more controlled conditions to ensure alignment with its research objectives. Therefore, dimension attributes are chosen based on intensity levels. To measure the trade-off effects, each dimension follows a three-tier classification: High, Medium, and Low. Although three dimensions with three attributes could result in 27 possible scenarios, this study strictly adheres to six scenarios that reflect perfect trade-offs among the three dimensions of environmental emotional connectedness, sustainable return and investment duration. The risk associated with investments is excluded from the scenarios because, according to studies by Wang and Zhou (2023) on government policies promoting sustainable finance, Han et al. (2024) on China's green investment incentives, and Wang et al. (2023) on regulatory frameworks for green projects, the Chinese government actively supports green investments, thereby minimizing the risk factor. Meanwhile, all other factors are assumed to be controlled or constant across all scenarios.

Participants were offered a green investment opportunity and were required to decide whether to invest (1) or not invest (0) across all six scenarios. Surveys were conducted separately for individual investors and finance professionals. Finance professionals are not investors themselves. However, we guided them to respond to the survey based on their observations of how investors would actually behave under these six trade-off scenarios in a highly controlled setting. This approach helps minimize potential biases that could arise if investors participated directly in the survey, as the study aims to explore the deeply inherent emotions of investors. Each survey presented the six hypothetical scenarios, and participants provided

responses using a Likert scale: highly likely to invest → 1 and highly unlikely to invest → 5. For analysis, Likert scale responses were later converted into binary outcomes: invest → 1, or not invest → 0.

Table 1. Scenarios based on the trade-off conditions among Environmental Emotional connectedness, Sustainable returns and Investment duration

Scenarios		Environmental Emotional connectedness	Sustainable Return	Investment Duration
S1: Scenario 1	→	High	Medium	Short-term
S2: Scenario 2	→	High	Low	Medium-term
S3: Scenario 3	→	Medium	High	Short-term
S4: Scenario 4	→	Medium	Low	Long-term
S5: Scenario 5	→	Low	High	Medium-term
S6: Scenario 6	→	Low	Medium	Long-term

3.2. Data analysis

The experiment was designed so that each respondent provided responses under every scenario, allowing the study to explore how investors' decisions varied across different scenario conditions. Panel logistic regression analysis was implemented to test the hypotheses.

Table 2 presents contrasting results between individual and professional samples. For individual, environmental emotional connectedness has a coefficient of 1.5622, indicating that they are more influenced by emotions in green financing rather than financial returns, which have a negative coefficient of -0.6739 . Conversely, professional exhibit the opposite trend, with a negative coefficient (-0.4352) for emotional connectedness, suggesting that emotions play a reverse role in investors investment decisions. These negative coefficients are just for the trade-off conditions in scenarios. Instead, professionals suggest investors prioritize returns, as shown by the positive coefficient (0.6184) for sustainable returns, indicating that profitability significantly influences investor's investment choices. Despite these differences, both groups showed similar preferences regarding investment duration, as investors preferred short-term investments across scenarios.

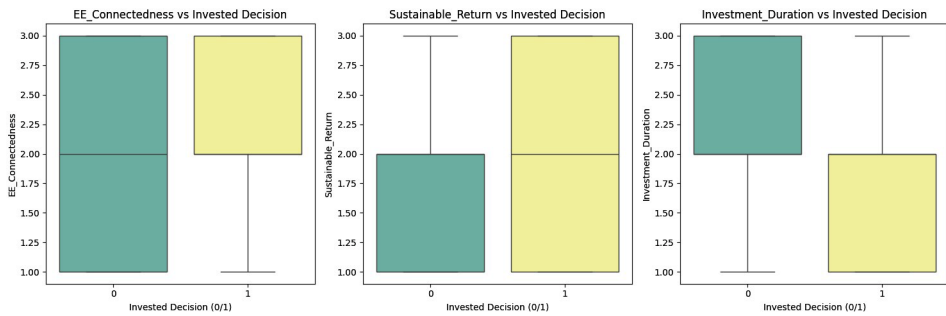
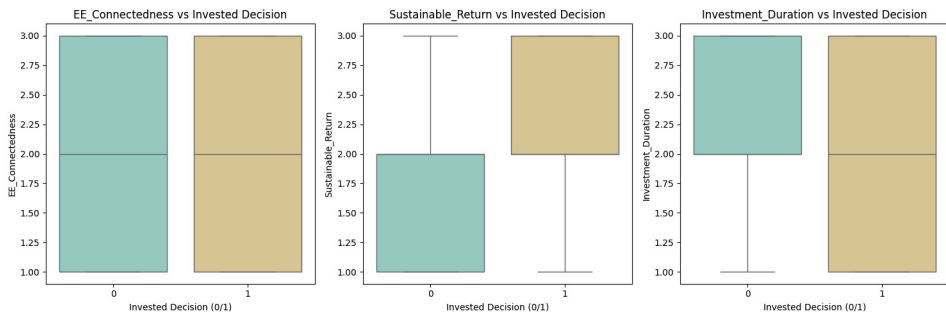
Regarding hypothesis testing, H1 was rejected for individual but accepted for professionals, as emotions significantly influenced investor's investment decisions for individual but not for professionals. Conversely, H2 was accepted for individuals and rejected for professionals, but both groups showed significant effects on investment decisions.

Since the responses were collected under perfect trade-off scenarios between emotional connection to the environment and sustainable returns, the coefficients of these two dimensions are opposite in each sample. However, both factors significantly influence green investment decision-making. Thus, the study concludes that both emotions and financial returns play a crucial role in investment decisions. However, for individuals, investors' emotions influence green investment decisions more than return, whereas for professionals, green financing decisions are determined more by sustainable returns rather than an emotional connection to the environment.

Table 2. Panel logistic regression of trade-off dimensions of individuals vs professional sample.

Dimensions	Individual			Professional		
	Coef	std err	p-value	Coef	std err	p-value
EE_Connectedness	1.5622	0.058	0.000	-0.4352	0.073	0.000
Sustainable Return	-0.6739	0.216	0.002	0.6184	0.068	0.000
Investment Duration	-2.318	0.42	0.000	-0.1708	0.061	0.005

Figure 1 and Figure 2 visualize investment decisions in relation to environmental emotional connectedness, sustainable returns, and investment duration for individuals and professionals, respectively. The boxplot for individuals shows that investors tend to invest when they have a high environmental emotional connectedness. In this emotional state, investors make investment decisions regardless of whether the profit is low or high. In contrast, professionals exhibit a weaker emotional connection but are still encouraged to invest if the sustainable return is high. Figure 2 further indicates that when investors achieve sustainable returns, their emotional connection to the environment becomes irrelevant, as they are likely to invest in green projects regardless of their level of environmental emotional connectedness.

**Figure 1.** Dimensions vs invested decision (individual)**Figure 2.** Dimensions vs invested decision (professional)

The pairwise distribution plot of investors compares key dimensions: EE_Connectedness vs. Sustainable Return, EE_Connectedness vs. Investment Duration, and Sustainable Return vs. Investment Duration in the context of investment decision-making. The distribution of investors across these dimensions provides insights into their investment preferences. Figure 3

represents individuals, while Figure 4 represents professionals. Both samples present a similar pattern of investor distribution in the pairwise distribution plot.

The graph indicates that investors are more likely to invest when they receive medium or high returns with a low emotional attachment and high returns with a medium emotional attachment. Investors are less likely to invest if they have high emotional attachment but low returns. A few exceptions exist where investors chose not to invest despite having high emotional attachment and medium returns.

Investors tend to prefer medium- and long-term investments when their emotional attachment is low. This unique investment preference is likely driven by sustainable returns, as the trade-off suggests that sustainable returns would be either high or medium. As a result, investors choose medium- or long-term investments with low emotional attachment. Similarly, if emotional attachment is at a medium level, investors may opt for short-term investments, possibly due to high sustainable returns. The plot clearly shows that investors favor short- and medium-term investments when the sustainable return is high, which may indicate a conservative approach or a lack of trust in green investments. A smaller group of investors prefers long-term investments when the sustainable return is at a medium level.

Through this pairwise analysis, the study provides a valuable insight: most investors make investment decisions in green finance based on sustainable returns rather than emotional connection to the environment.

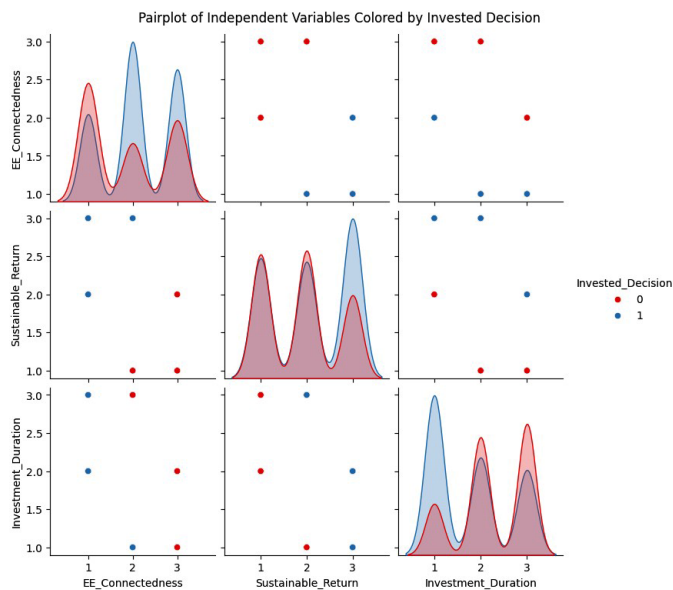


Figure 3. Pairplot of dimensions w.r.t. invested decision (individual)

Table 3 presents the results of the Kruskal–Wallis test conducted to examine the third hypothesis. The high H-statistics values of 252.22 for individuals and 145.69 for professionals, along with significant p-values, support the acceptance of hypothesis H3.

This indicates that investors' investment preferences vary across all trade-off scenarios involving environmental emotional connectedness, sustainable return, and investment duration.

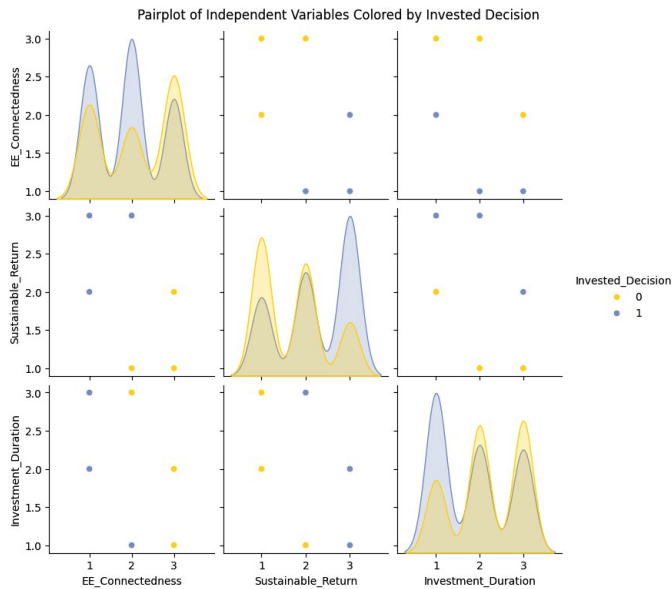


Figure 4. Pairplot of dimensions w.r.t invested decision (professional)

Table 3. Results of Kruskal–Wallis test

Samples	H statistics	p-value
Individuals	252.22	<0.001
Professionals	145.69	<0.001

Tables 4 and 5 present the Nemenyi post-hoc test results for individuals and professionals, respectively. Each scenario was compared pairwise against all other scenarios to identify statistically significant differences. The significantly different pairs were then ranked in Table 6.

The pairwise comparison results indicate that S3 exhibits a significant difference from all other scenarios in both individuals and professionals, as shown by the p-values in Tables 4 and 5. Similarly, S1 is the second most significant scenario after S3. Beyond this, the significance levels vary between individuals and professionals. S6 and S2 are ranked third in individuals and professionals, respectively. In the individual sample, S5, S2, and S4 are ranked 4th to 6th in terms of significant differences. Conversely, in the professional sample, S4, S5, and S6 hold the 4th to 6th positions, respectively, according to the scenario ranking in Table 6.

Table 4. Nemenyi Post-hoc test results pairwise comparison of scenarios for Individuals

Scenarios	S1	S2	S3	S4	S5	S6
S1	–	–	1.64×10^{-10}	1.80×10^{-2}	6.48×10^{-5}	2.15×10^{-8}
S2	–	–	2.39×10^{-18}	–	1.46×10^{-3}	–
S3	1.64×10^{-10}	2.39×10^{-18}	–	8.57×10^{-25}	3.29×10^{-32}	1.37×10^{-40}
S4	1.80×10^{-2}	–	8.57×10^{-25}	–	–	–
S5	6.48×10^{-5}	–	3.29×10^{-32}	–	–	–
S6	2.15×10^{-8}	1.46×10^{-3}	1.37×10^{-40}	–	–	–

Table 5. Nemenyi Post-hoc test Results pairwise comparison of scenarios for professionals

Scenario	S1	S2	S3	S4	S5	S6
S1	–	–	6.70×10^{-16}	–	–	–
S2	–	–	5.02×10^{-20}	–	0.086	–
S3	6.70×10^{-16}	5.02×10^{-20}	–	1.65×10^{-21}	4.26×10^{-9}	4.27×10^{-10}
S4	–	–	1.65×10^{-21}	–	0.036	0.086
S5	–	0.086	4.26×10^{-9}	0.036	–	–
S6	–	–	4.27×10^{-10}	0.086	–	–

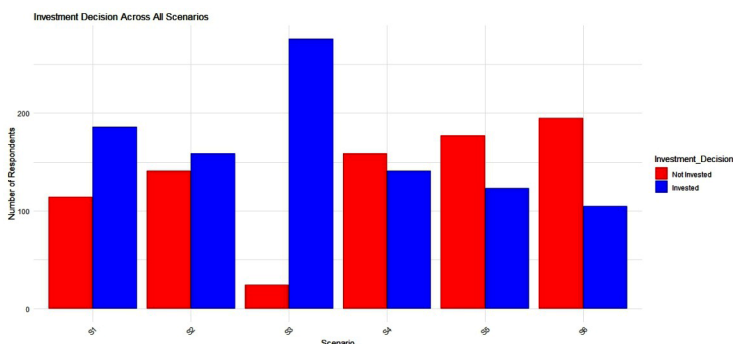
Tables 3 to 6 support H3 because, while the Kruskal–Wallis test identifies significant differences among groups, it does not specify which groups differ the most or establish a hierarchy of significance. The Nemenyi post-hoc test contributes valuable insights by determining which scenario differs the most and ranking them based on significance.

Table 6. Ranking of Scenarios based on statistically significant differences

Rank No.	Individuals	Professionals
	(Most Significant to Least)	(Most Significant to Least)
1	S3	S3
2	S1	S1
3	S6	S2
4	S5	S4
5	S2	S5
6	S4	S6

When analyzing Figures 5 the bar plot indicates that Scenario 3 is the most frequently chosen investment scenario. In this scenario, the sustainable return is high, emotional connection to the environment is medium, and the investment duration is short-term (please see Table 1).

Following this, investors tend to choose Scenarios 1 and 2, where environmental emotional connectedness is high. This suggests that the majority of individual investors have strong emotional values associated with the environment. However, they also consider returns, as

**Figure 5.** Investment decision across the scenarios (individual)

most investors prefer scenarios 3 where returns are high, even if environmental emotional connectedness is at a medium level, rather than choosing S1 or S2.

Figure 6, which captures responses from professionals regarding real-time investor behavior, suggests a slightly different pattern. The bar plot peaks indicate that investors prioritize returns first. This is why Scenario 5 and Scenario 6 exhibit the highest percentage of investment decisions both scenarios offer high or medium sustainable returns with medium and long-term investment durations (please see Table 1). Finally, Figure 7, which compares individuals and professionals, reinforces the same investment preference patterns described above.

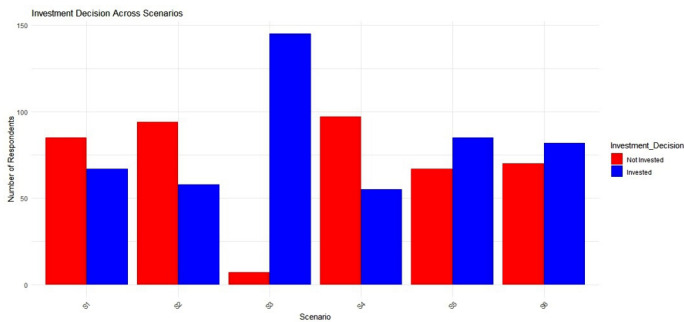


Figure 6. Investment decision across the scenarios (professional)

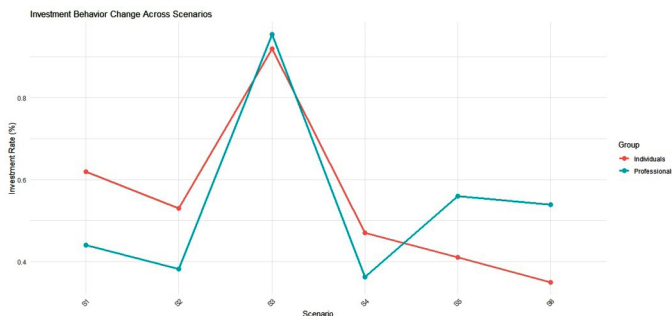


Figure 7. Compare investment behavior across the scenarios (individual vs professional)

4. Discussion

The combined results from panel logistic regressions, the Kruskal–Wallis test, the Nemenyi post-hoc test, and graphical analyses collectively indicate that investors consistently prioritize profit or returns in green investments. While emotions do play a role, they are only considered when investors perceive similar financial value across options. These findings align with the results reported by Duchene et al. (2022), who argue that investors do not prioritize emotional connections to the environment when faced with higher investment risks. Their study compares green versus brown assets, reinforcing the perspective that profit motives dominate investment decision-making even in the context of sustainable investments. Similarly, Lim et al. (2024) suggest that emotional factors do not replace financial motives in investment decisions. Instead, sustainable investment choices are influenced by the emotional values of investors and by how they interpret non-financial information. Once investors' profitability

expectations are satisfied when selecting a sustainable investment option, emotions such as empathy and self-esteem draw greater attention to sustainability-related attributes.

This study designed an experimental setting to evaluate investors' sustainable investment choices and the findings indicate that when different investment opportunities offer varying returns, investors primarily focus on profitability. Although the sample of individual investors suggests that emotional attachment is valuable for green investments, professionals based on their observations and experience argue that investor responses may be biased. According to professionals, investors consistently prioritize higher returns. These findings are consistent with previous empirical evidences, like Brodback et al. (2020) conducted an experimental study in which participants were offered assets with identical financial risk and return characteristics but differing levels of social responsibility. Their results show that investors are willing to pay for socially responsible attributes only when the financial performance of the asset remains attractive. However, when expected financial performance declines, investors become reluctant to pay for social responsibility. Similarly, Bansal et al. (2022) reported that poor investment performance discourages investors from making decisions driven primarily by emotional attachment to environmental concerns. These studies support the findings of this experimental research indicating that financial motives remain priority in the evaluating sustainable investments. Emotional considerations may encourage interest in green investments; such motivations generally operate within the boundaries set by expected financial returns.

The study was designed under strictly controlled conditions, focusing exclusively on green investments and green financing. However, when comparing two scenarios with high returns, investors may then consider emotional attachment to the environment. For example, Scenario 3, which offers high returns with medium environmental emotional connectedness, is preferred over Scenario 5, which provides high returns but low environmental emotional connectedness. These results are consistent with the findings of Lim et al. (2024), where economic performance (Profit motive) emerges as the dominant driver of investment choice, while emotional considerations are not irrelevant; rather, they exert a context-dependent influence on investor behavior. Moreover, the influence of these emotional factors varies across cultural and investor characteristics, reinforcing the view that sustainability-oriented investment behavior is driven by an interaction between rational profit motives and socially embedded emotional responses.

4.1. Theoretical implication

This study contributes to the theoretical understanding of sustainable investment behavior by highlighting the interplay between financial motives and emotional attachment. The findings demonstrate that while investors may consider environmental emotional connectedness, profit motives remain the primary driver of investment decisions. By employing an experimental design, the study provides empirical evidence that expected financial performance and emotional factors jointly shape sustainable investment choices, extending existing behavioral finance and sustainable finance theories.

4.2. Practical implication

Based on these findings, financial institutions, fund managers and project developers involved in green investments should design opportunities that offer competitive financial returns

alongside environmental benefits. Communicating both profitability and sustainability can enhance investor participation, particularly when multiple investment options are available.

4.3. Limitations

This study has certain limitations. Investor behavior was observed through scenario-based and field experiments conducted under controlled trade-off conditions, while actual investment decisions in real-time market environments may be influenced by dynamic factors beyond experimental control. In addition, the exclusive focus on green investments limits the ability to make direct comparison with conventional investment options, and investor preferences may differ when non-green alternatives are explicitly considered. The sample of individual investors and professionals may limit generalizability, due to their distinct experiences, cultural factors, and potential biases, such as individual investors providing biased responses by presenting themselves as more environmentally responsible than is reflected in their actual investment behavior. Although insights from the professional group help reveal this hidden bias, professionals cannot abundantly capture individual investors' true behavior. Since the investment scenarios were hypothetical, investors' preferences may not fully reflect their actual sustainable investment behavior in real financial markets. Although the scenario-based experiment was carefully designed, it may not fully capture the subtle nuances of investor preferences and trade-offs. Despite these limitations, the study provides valuable insights into green investment behavior.

4.4. Future research

The findings of this research open new avenues for future studies. Other researchers can explore investment preferences using longitudinal or transaction level data based on real-time investment history, examine different markets under varying conditions, or analyze investment behavior with alternative trade-off dimensions. They can compare investors' behavior between sustainable and conventional investment opportunities. Furthermore, research could analyze how investors' financial literacy, experience, cultural background, and demographic characteristics influence their investment decisions.

5. Conclusions

The core aim of this research is to identify the hidden driving force behind investments in green projects whether it is an emotional connection to the environment or the expectation of investment returns. These two determinants are inherent, as investors may not always consciously consider them, yet they unconsciously influence investment decisions. This makes it challenging to determine which factor the stronger motivator behind green is financing.

Data were collected from two samples: one directly from individual investors and the other from professionals who have deep insights into investor behavior. Responses were gathered through a scenario-based experiment and a field experiment, both conducted under trade-off conditions across six scenarios.

The study concludes that individual investors do not choose green investments solely based on emotional attachment to the environment; they also prioritize returns. If a green investment provides both emotional satisfaction and a good return, it becomes the ideal choice for individual investors. In green financing, investment duration appears to be

irrelevant. Investors compare emotional and financial value, and if an investment opportunity offers both, they are more likely to invest. The most favorable investment scenario occurs when investors gain high returns along with high emotional satisfaction. However, even when investors have a strong emotional attachment to the environment, they still seek monetary benefits to some extent; otherwise, they are unlikely to invest. Ultimately, the study suggests that individual investors always prioritize returns. While they may consider other factors, they do not accept trade-offs that significantly reduce financial gains. Instead, they aim to achieve a balanced investment that offers both profitability and additional benefits.

Acknowledgements

The authors would like to express their sincere gratitude to all individuals and institutions who contributed to the completion of this research. Special appreciation is extended to colleagues, reviewers, and academic mentors for their valuable comments, guidance, and constructive suggestions throughout the study. The authors are also thankful to the respondents and data providers whose cooperation made this research possible. Finally, the authors acknowledge the support of their affiliated institutions for providing the academic environment and resources necessary to conduct this research.

Funding

This research was funded by the National Natural Science Foundation of China under Grant 72464018; the Ministry of Education of Humanities and Social Science Project under Grant 24YJA630076; the Applied Basic Research Key Project of Yunnan under Grant 202401AS070112; Yunnan Provincial Innovation Team for Philosophy and Social Sciences under Grant 2025CX15.

Author contributions

Muhammad Atif Sattar conceived the study and was responsible for the overall paper write-up, conceptualization, methodology development, data analysis, interpretation of results, and preparation of the original manuscript draft.

Shen Junxin supervised the research process, provided academic guidance, validated the research framework, and contributed to reviewing and improving the manuscript.

Fanhao Xiao contributed to literature review refinement, data interpretation, manuscript editing, and critical revision of the article for important intellectual content.

Muhammad Waseem assisted in data collection, statistical analysis, visualization of results, and proofreading of the final manuscript.

Disclosure statement

The authors declare that they have no competing financial, professional, or personal interests that could have appeared to influence the work reported in this paper.

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