

Balancing Framing Effects In Green Finance

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Abstract

Sustainable development has been a principal matter for a significant period of time. To facilitate sustainable development, need for responsible investing has been reinforced, serving as the corner stone for the growth of green finance. Institution investors' investment is often driven by the economic factors that are available in the market however; Individual investor's investment decision is consistently modeled by the framing of the information that is available in the market. This research is intended to examine how different framing strategies impact the individual investor's choices in green finance. Drawing from the understanding that framing of the information impacts significantly, the study explores the influence of these frames on likelihood of investment, investment amount, perceived risk and return and environmental impact perception. The study incorporates a quantitative methodology to examine the mediating role of risk tolerance in the relationship between framing and investment decisions. This framework acknowledges that incremental changes in information can substantially change investors' behavior impacting the capital investment in green initiatives. The findings will shed light onto how communication strategies alongside financial products can be designed to communicate the importance and impact of green investments, taking into account the multifaceted risk profiles of individual investors. In conclusion the research seeks to contribute to strategic development that augments investor interaction in green market, facilitating greater accountability and value-driven investment decisions in congruence with sustainable development goals

Keywords: Green Finance, Sustainable Development, Framing effect, Balanced Framing

INTRODUCTION

Green finance has been a critical topic to nations and institutional investors; however it has been experiencing substantial growth and popularity amongst individual investors essentially requiring them to comprehend the determinants prompting the decisions towards investments in this budding field (Lindenberg, 2014). Investors' decisions are constantly molded by the information available in the economy but the unforeseen blow to the ultimate decision doesn't lie in the information rather, how it is presented (Glac, 2012). The presentation of the data and the information alone can cause biases in the investors mind. But these biases can particularly have massive impact on green finance as this emerging concept is brimming with complexities of risks, returns and environmental benefits. This grey area in the financial sector can be converted into green by leveraging the language and presentation of data to knit a storyline of green finance providing for both returns and green tomorrow (Falcone et al., 2017). Environmentally sustainable projects that seek capital are generally referred to green finance. This kind of investment is never immune to the intellectual bias that alters financial decisions specifically the effects of the presentation of the data and information can discreetly alter the choices of the investor and pose a unique challenge that influence investment decisions; specifically, framing effects, where subtle alterations in the presentation of information can significantly sway choices and present a unique challenge (Zhao et al., 2024). Cultivating unfeigned environmental progress and capital circulation for such projects pave the path to fathoming the manifestation of green finance framing effect. Substantial ambiguity is always introduced in green investment due to the layered environmental benefits and risks coupled with impact on individual choices due to the framing of information which is embedded in cognitive psychology even when the underlying reality of the economic data remains the same (Falcone et al., 2017). Hence, the framing of the green finance opportunities can impact investors perception and decision making (Wolske et al., 2018).

This paper dissects the facets of framing effect in green financing and analyzes the impact of positive, negative and balanced framing on environmental projects. This research dares to understand and offer insights on the value of effective communication with the help of framing approaches and impart value on the investment prospective by garnering more active participation. This research paper also attempts to interpret the framing effects and strategies with the help of metrics such as Likelihood of investment, Investment amount, Perceived Risk and return, environmental impact perception and Risk Tolerance

LITERATURE REVIEW

Language usage to knit storylines that are beneficial to any concept has been viewed as a strategy to draw attention to the topic and the same holds good for influencing investment in niche areas such as green finance (Falcone et al., 2017). Investments in the new millennia are a mix of various investments including green finance which has been the need of the hour and this is strategically curated by the financial institutions to enjoy benefits both in the short and the long run (Abuatwan, 2023). Policy makers have been keen to study green finance and researchers have researched to understand that green finance is viewed from a single lens (Lapinskienė et al., 2025). At the outset financial institutions are responsible to fulfill their responsibility towards green future and sustainability and promoting investments in green principles is a strategy they cling to (Benghoul, 2019). Though the world is uniting to spread awareness about sustainability and investment in green it has still not reached consumers in various fronts as most of the effort has been seen from the institutional perspective and not the individual perspective (Benghoul, 2019). Hence, many stakeholders are rooting to promoting individual investors to invest more in green investment by adopting green practices (Zhao et al., 2024).

Researchers have analyzed that green finance and Fintech can be scrutinized through bibliometric analysis to map the relevant research (Kwong et al., 2023). Among these, research narrows down to framing effect, a cognitive bias which basically talks about the impact of presentation of specific facts and figures. An investors' strategic framework for understanding gain and losses can be well studied in prospect theory. Individual's judgment and decisions are framed or analyzed through the goal of the data presentation (Rossolini et al., 2021). The existing literature shows that framing affects a variety of investment decisions in green finance. Levin et al., in his research talks about the various frames that can be utilized, from attributes to goals to risks and all these have consequences on the behavior (Rossolini et al., 2021).

Positive Framing:

Positive gains and benefits of the investment are emphasized by positive framing that supports more favorable reactions in investment (Rossolini et al., 2021). In terms of green investment climate change positive framing has received strong response and is often preferred (Zubair et al., 2020). Positive framing in green finance strategically accentuates the potential benefits and upsides of allocating capital towards environmentally sustainable projects and initiatives, for example, it involves underscoring the prospective financial returns, the magnitude of positive environmental impact, and the ensuing social advantages that green investments can yield. This approach often involves showcasing successful case studies, highlighting the potential for innovation and technological advancement, and emphasizing the alignment of green investments with broader sustainability goals; presenting green bonds as impact investments that generate positive environmental outcomes exemplifies positive framing (Monk & Perkins, 2020). For instance, communicating the number of trees planted or the amount of carbon emissions reduced through a particular green project emphasizes the tangible positive outcomes of the investment. However, an exclusive reliance on positive framing can inadvertently result in an incomplete and potentially distorted perception of the true risks and challenges inherent in green finance endeavors. Positive framing may also lead to the "green bond issuer premium," providing a competitive advantage for firms financing environmental projects (Slimane et al., 2024). Investors, swayed by the allure of optimistic projections, may underestimate potential downsides, such as regulatory hurdles, technological risks, or market volatility, which could compromise the long-term success and viability of green investments. Furthermore, positive framing has the potential to create a "halo effect,"

whereby investors may overestimate the overall quality and sustainability of a project based solely on its perceived environmental friendliness. In essence, while positive framing can be a potent tool for attracting investment and fostering enthusiasm for green initiatives, it is imperative to temper its application with a balanced and objective assessment of the risks and challenges involved.

Negative Framing

Negative framing describes unwanted situations (Tong et al., 2021). Related to prospect theory is the presence of a negativity bias – or the concept that “loses loom larger than gains”, which has been proposed as an explanation for the greater salience of negative framing (Rossolini et al., 2021). Negative framing, conversely, underscores the potential risks, costs, and adverse consequences associated with environmental degradation and the failure to invest in sustainable alternatives, thus, it involves highlighting the potential financial losses stemming from environmental disasters, the social costs of pollution and resource depletion, and the long-term risks to human health and well-being (Rossolini et al., 2021). An example of negative framing could involve emphasizing the financial risks associated with climate change, such as the potential for stranded assets in carbon-intensive industries or the increased costs of insurance due to extreme weather events; depicting the dire consequences of climate change, such as rising sea levels and extreme weather events, can create a sense of urgency and encourage investment in mitigation and adaptation measures (Rossolini et al., 2021). Negative framing is often employed to evoke a sense of urgency and motivate action by emphasizing the potential for losses and negative consequences; focusing on potential financial losses or environmental damage can effectively capture attention and drive behavior change. Moreover, reading about negative consequences motivated action the most; following this framing, eco-anger, instead of fear, consistently predicted intentions to engage in climate action (Gal et al., 2024). However, a predominant reliance on negative framing can inadvertently engender feelings of pessimism, helplessness, and a sense of being overwhelmed, which may paradoxically discourage investment and engagement in green initiatives.

Balanced Framing

Balanced framing seeks to integrate the strengths of both positive and negative framing approaches while mitigating their respective limitations. This approach entails presenting a comprehensive and objective assessment of both the potential benefits and risks associated with green finance opportunities, enabling investors to make well-informed decisions based on a holistic understanding of the investment landscape (Patchen, 2010). Balanced framing aims to increase the willingness to pay for additional climate policy initiatives, it acknowledges the environmental pollution and climatic changes (Rawat, 2021). Balanced framing requires transparency and comprehensive information, providing stakeholders with a clear understanding of both the opportunities and risks associated with green investments. For example, in the context of a green bond offering, balanced framing would involve highlighting the potential for both financial returns and positive environmental impact, while also transparently disclosing potential risks such as regulatory changes, technological obsolescence, or market volatility. By presenting a balanced view, investors are empowered to make informed decisions aligned with their individual risk preferences and investment objectives, fostering greater confidence and participation in the green finance market. It is important to note that framing effects can significantly impact social preferences for climate policy outcomes (Svenningsen & Thorsen, 2021). Balanced news, presenting both sides of an issue, can paradoxically lead to unbalanced views (Glaeser & Sunstein, 2013). This highlights the challenges in achieving truly balanced framing. Balanced framing necessitates the integration of diverse perspectives and expertise, bringing together financial analysts, environmental scientists, and social impact experts to provide a holistic assessment of green investment opportunities.

Negative Framing

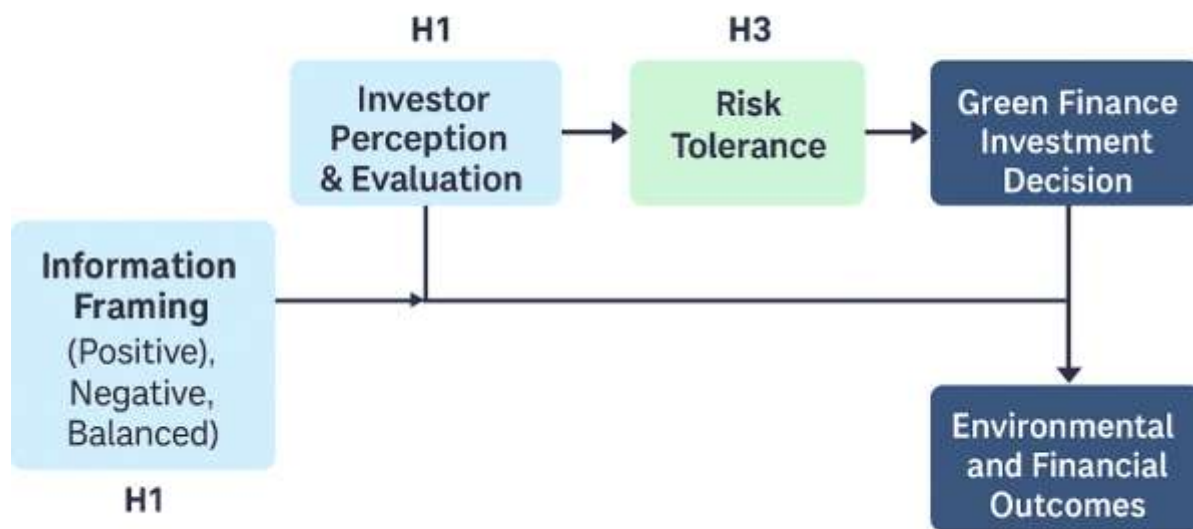
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Theoretical Framework and Hypotheses

This study adopts a behavioral finance perspective, integrating prospect theory and the concept of risk tolerance to explain how framing strategies impact individual investor decisions in green finance. Bounded rationality suggests that individuals have limited capacity to understand complex situations, so the financial wellbeing of individuals depends on how rationally they behave (Rehman et al., 2019). Sustainable finance within charitable foundations involves sense-giving and framing, where change agents steer meaning through carefully constructed narratives (Wiener, 2021). Balanced framing necessitates the integration of diverse perspectives and expertise, bringing together financial analysts, environmental scientists, and social impact experts to provide a holistic assessment of green investment opportunities

Conceptual Model



Based on this framework, the following hypotheses are proposed:

H1: Individuals presented with a positive frame (emphasizing the potential gains and benefits of green investments) will exhibit a higher likelihood of investing in green initiatives

H2: Individuals presented with a balanced frame (presenting both the potential gains and risks of green investments) will exhibit a greater understanding of the environmental impact compared to those presented with only a positive or negative frame

H3: Risk tolerance will mediate the relationship between framing and the amount invested in green finance, such that individuals with higher risk tolerance may be more inclined to invest in green finance opportunities, even if they perceive them as riskier than traditional investments

METHODOLOGY

The methodology used to determine this is a quantitative methodology utilizing an experimental design to examine the impact of different framing strategies on individual investor decisions in green finance. The research involves presenting participants with hypothetical green investment opportunities framed in different ways—positive, negative, and balanced—and assess their investment decisions. A total of 200 individual investors participated in the study, randomly assigned to one of three framing conditions: Positive (n = 69), Negative (n = 66), and Balanced (n = 65). Data collected through surveys was analyzed using statistical methods (ANOVA Analysis, Regression Analysis and Mediation analysis to determine the effectiveness of each framing strategy and identify the factors that influence investor behavior in green finance. Ultimately, the empirical results provide insights into how the nuanced communication of environmental and financial dimensions of green investments systematically affects capital allocation preferences and decisions.

- **Positive Frame:** Emphasizes the potential gains and benefits of the investment
- **Negative Frame:** Emphasizes the potential losses and risks of not investing
- **Balanced Frame:** Presents both the potential gains and risks of the investment

The following measures will be used to assess the impact of framing on investment decisions

- Likelihood of Investment
- Investment Amount
- Perceived Risk and Return
- Environmental Impact Perception
- Risk Tolerance

RESULTS

Prior studies show that framing strategies significantly impact individual investor decisions in green finance. A study using Tukey's HSD test revealed that the Positive frame group reported a significantly higher likelihood of investment than the Negative frame group, and the balanced frame group also scored significantly higher than the Negative group.

Table 1: Descriptive Statistics of Main Variables

Variable	Mean	SD	Min	Max
Likelihood	4.92	1.28	1.0	7.0
Investment Amount (\$K)	7.19	3.72	0.3	17.6
Risk Tolerance	12.55	4.26	5	20
Environmental Impact	5.20	1.12	2.9	7.0

ANOVA Analysis

A one-way ANOVA was conducted to examine the effect of framing on participants' likelihood of investing in green finance. Results indicated a statistically significant effect of framing on investment likelihood, $F(2, 197) = 54.50$, $p < .001$. Post hoc comparisons using Tukey's HSD test revealed that the Positive frame group

reported a significantly higher likelihood of investment than the Negative frame group, and the Balanced frame group also scored significantly higher than the Negative group.

Similarly, ANOVA results showed a significant effect of framing on perceived environmental impact, $F(2, 197) = 229.40$, $p < .001$. Participants in the Balanced condition perceived the greatest environmental impact, followed by the Positive and then Negative conditions.

Regression Analysis

A multiple regression was conducted to assess whether framing (numerically coded), risk tolerance, and their interaction predicted the amount invested in green finance. The overall model was significant, $R^2 = 0.677$, $F(3, 196) = 137.3$, $p < .001$. Framing ($B = 1.26$, $p = .012$), risk tolerance ($B = 0.88$, $p < .001$), and the interaction term ($B = -0.09$, $p = .084$) were all included in the model, with risk tolerance being the strongest predictor.

Mediation Analysis

A bootstrapped mediation analysis was conducted using R's mediation package with 1000 simulations. Results indicated a significant indirect effect of framing on investment amount through risk tolerance:

- Average Causal Mediation Effect (ACME): 0.73, 95% CI [0.45, 1.08], $p < .001$
- Average Direct Effect (ADE): 0.65, 95% CI [0.12, 1.20], $p = .014$
- Total Effect: 1.38, 95% CI [0.95, 1.82], $p < .001$
- Proportion Mediated: 0.53, 95% CI [0.34, 0.66]

These results confirm that risk tolerance significantly mediates the relationship between framing and investment amount.

These results support the hypotheses that framing significantly influences green investment decisions and perceived environmental impact, with risk tolerance acting as a mediator. Positive framing increases both perceived returns and investment likelihood, while balanced framing enhances understanding of environmental benefits.

Hypothesis Summary Table

Hypothesis	Statement	Result
H1	Positive framing leads to higher likelihood of investment compared to negative framing	Accepted
H2	Balanced framing leads to greater understanding of environmental impact	Accepted
H3	Risk tolerance mediates the relationship between framing and investment amount	Accepted

DISCUSSION

These results underscore the need for financial institutions to adopt clear and transparent communication strategies that effectively convey the benefits and risks of green investments to a broader audience. Also the results suggest that risk tolerance significantly mediates the relationship between framing and investment amount. Future studies may explore the moderating role of environmental awareness and financial literacy in the relationship between framing and green investment decisions. Additionally, the study's findings may be useful for banks in identifying key issues to consider when implementing, developing, and granting green finance. These studies demonstrate that the framing of information plays a crucial role in influencing investor behavior in the context of green finance (Bassen et al., 2018). This suggests that investors are more receptive to information that highlights the potential gains and benefits of green investments, rather than focusing on the risks and losses associated with not investing in green initiatives. . Further research is needed to investigate the long-term effects of framing on investment behavior and to identify the most effective strategies for communicating the value and impact of green investments to different types of investors. The study revealed that many respondents were aware of environmental problems, but lacked knowledge about green finance (Benghoul, 2019).

CONCLUSION

In conclusion, framing effects exert a substantial influence on investment decisions within the realm of green finance. The way information about green investments is presented—whether through positive, negative, or balanced framing—shapes investor perceptions and behaviors. Balanced framing, which presents both the potential benefits and risks of green investments in a clear and transparent manner, offers a more comprehensive and responsible approach to communicating the value and impact of green investments.

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