

My money—My problem: How fear-of-missing-out appeals can hinder sustainable investment decisions

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Abstract

Cryptocurrencies (cryptos) have detrimental environmental effects due to their massive energy consumption. While several green crypto coins have been launched, the mainstream—environmentally unfriendly coins—still lead the market. In this study, we explore if influencer marketing, specifically fear-of-missing-out (FOMO) appeals, can contribute to promoting green crypto coin purchases to encourage sustainable investments. The results of five studies (two lab experiments using neurobiological sensors, two online experiments, and a discrete choice experiment) show that social media postings conveying FOMO appeals decrease (increase) green crypto (normal crypto) coin investments. The results further show that message congruence and emotional value perceptions mediate this effect. Finally, we demonstrate that the observed results hold when adding governance and regulatory crypto support as well as the crypto price path evolution to the choice. The results provide notable theoretical contributions and implications for policymakers concerned with fostering more sustainable consumption behavior in the crypto context.

KEYWORDS

congruence, fear-of-missing-out, green cryptocurrency, influencer marketing, Sustainability

1 | INTRODUCTION

Cryptocurrencies (cryptos) have been one of the fastest-growing digital assets, with a market cap of \$2.4 trillion in 2024 (Forbes, 2024) and a projected 10-fold growth rate for the decade of the 2020s (Statista, 2023a). While the wide availability of cryptos has democratized the investment landscape and might revolutionize currency systems in the near future (Chaudhry & Kulkarni, 2021), this development is not without downsides.

The tremendous growth of the crypto market has also shifted the focus to the massive amounts of energy necessary to maintain the system, connecting cryptos to a massively negative environmental

impact (Livni, 2021). For instance, over the course of a year, the crypto infrastructure consumes more electricity than most individual countries on earth (Chow, 2022). The current emergence of green, emission-free crypto alternatives is an interesting development addressing this criticism (Lacey, 2024). However, the scale of such approaches has remained behind predictions and expectations (Mnif et al., 2021), and there is strong consumer skepticism towards green investment opportunities in general (Friede, 2019). More sustainable-oriented investment opportunities, including green cryptos, often seem to be discarded or neglected by investors when making an actual investment choice because of the existence of different biases and misconceptions around them (Brunen & Laubach, 2022).

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This aligns with the emerging stream of literature investigating consumer rejections of sustainable alternatives in general (see Acuti et al., 2022). Compared to traditional financial investment markets, the crypto market has been shown to be particularly influenced by social media and influencers (see Meyer et al., 2023). Actually, recent studies have shown that content created by crypto influencers can predict market trends (Yamamoto et al., 2020) and impacts consumer choices to a large degree (Merkley et al., 2024). Furthermore, often such content serves as the primary source of information for many private investors (Shiva & Singh, 2020). Social media influencers and influencer marketing have been on the rise for the last decades. Influencers significantly impact consumers' sentiments, attitudes, purchase intentions, and behaviors (see Gerrath & Usrey, 2021; Han & Balabanis, 2024; Torres et al., 2019). They often shape consumers' decisions by triggering feelings of urgency, desirability, and even the fear of missing out (FOMO) on desirable consumption experiences (Mulcahy et al., 2024). Therefore, given that influencers exert huge impact on the crypto market, and that often consumers are skeptical toward sustainable choices, it is essential to explore how social media influencing mechanisms shape individuals' investing decisions related to green cryptos. Nevertheless, while influencers and social media have been identified as capable of shaping consumer opinions and actions, including crypto investment decisions, their role in promoting sustainable and green behaviors has been practically ignored (see Ballestar et al., 2022). In this line, relatively little is known if the same mechanisms that drive regular crypto investments can be used to foster more sustainable investments. To address this phenomenon, we turn to the emerging literature of FOMO, which emerges as a critical factor linked to both crypto investment and influencer communication. Recent studies show that influencers evoke FOMO in their followers by showcasing desirable activities or simply products and services (Dinh & Lee, 2022). Furthermore, FOMO has also been identified as a driver for crypto investment and risky investment behavior by reducing the anticipated consequences of a bad investment decision and enhancing the pleasure derived from investing (Friederich et al., 2024). While FOMO is typically referred to as "a personality trait or a general sense of anxiety about 'missing out on' activities with others" (Good & Hyman, 2020, p.564), recent findings emphasize that it can be situationally induced by altering individuals' perceptions temporarily (Friederich et al., 2024; Good & Hyman, 2020; Hodkinson, 2019). These situational FOMO appeals have been shown to be influential in consumer decision-making in different contexts. Typically, consumers are more likely to purchase a product or a service after being exposed to FOMO appeals, given that FOMO is a negative emotion, and the consumption of the desired product or service seems like a short-term remedy to cope with situational negative feelings. This is relevant for the crypto market, as it has been shown that the negative emotions spread by crypto influencers resonate more with their audience and spread further among potential investors (Meyer et al., 2023). Recent studies show that influencers often make use of FOMO appeals to elicit impulsive consumer reactions (Mulcahy et al., 2024), while

impulsive consumer decisions have also been shown to impede sustainable investment choices (Friede, 2019).

While FOMO has mainly been linked to negatively connoted behaviors, such as excessive consumption or social media usage (Fang et al., 2020), this study explores if FOMO can also be used for fostering sustainable desirable behaviors in the form of green crypto investments. Exploring this connection seems particularly relevant as FOMO typically relates to instant, short-term-oriented behavior (Sharma, 2023), while sustainability is typically linked to long-term, future-oriented perceptions (Grill, 2018). Given that the effectiveness of influencer marketing strongly depends on messages that are congruent for the advertised product or brand and the influencer (Han & Balabanis, 2024), it is essential to understand if and how the use of FOMO appeals on social media enhances or hinders sustainable investment choices.

Accordingly, this study contributes to existing literature on FOMO appeals, influencer messages, and sustainable investment choices in different ways. First, we investigate the effectiveness of FOMO appeals on social media posts for sustainable (green) versus traditional (nongreen) cryptos. Given the effectiveness of FOMO appeals in increasing consumers' investment behavior (Friederich et al., 2024), it is essential to analyze if this effect also extends to sustainable-oriented investments, like sustainable cryptos, or if the impulsivity and irrationality induced by FOMO appeals backfire for more sustainable investment choices. This enhances the understanding of FOMO appeals and guides the understanding of how to design effective messages to persuade consumers to opt for more sustainable choices.

Second, we explore the mediating mechanisms through which FOMO appeals can elicit or prevent sustainable investment behaviors. Specifically, we focus on understanding the role of congruence and customer value perceptions, which have not been linked previously to FOMO appeals. In this sense, the effectiveness of influencer messages depends mainly on the congruence between the message and the product (Han & Balabanis, 2024). Furthermore, consumer value perceptions (emotional, social, and functional value) have been repeatedly shown to be influential in consumer purchase decisions in online contexts (González et al., 2021). Since FOMO can exacerbate individuals' experienced anxiety and negative feelings in social media (Ilyas et al., 2022; Jabeen et al., 2023), perceived value can mediate the influence of FOMO on consumer behavior by increasing the perceived benefits and importance of social media content, making consumers more likely to engage impulsively or irrationally. This is likely, because FOMO can increase value perceptions in different ways, for instance, by creating a sense of urgency or exclusivity or by creating social pressure (see Argan et al., 2022). This can lead to impulsive or irrational behavior, as consumers may feel compelled to engage with the content or event to avoid missing out. The ability to discriminate between the different value dimensions further adds to the literature on FOMO appeals by explaining how value actually regulates the relation between FOMO and behaviors.

Third, we employ a wide range of experimental studies, combining different stimuli designs that provide robustness to the central premise that FOMO appeals in social media represent a major driver of consumer behavior. We extend our measures beyond classic intentional variables by including neurobiological correlates, as well as a discrete choice experiment. Among these, we include two experiments that include data from electroencephalography (EEG) and galvanic skin response (GSR) to better understand the link of FOMO-appeals and investment behaviors. In doing so, we open the debate on the neurological process behind the effects of FOMO and FOMO appeals. Additionally, to develop empirical and practical guidance for consumer preferences, we are conducting a discrete choice experiment that encompasses various attributes influencing consumers' choices in the sustainable investment domain. This allows us to better understand the relevance of the studied concepts in a multifactorial, more realistic environment.

The study is organized as follows. First, in the following section, we present the theoretical background and the development of the hypotheses. Second, five empirical studies are performed to test the proposed hypotheses. This includes a preliminary study, three main studies, and an additional discrete choice experiment. Third, we present the general conclusions, theoretical implications, and guidelines for practitioners derived from the empirical studies.

2 | THEORETICAL BACKGROUND AND HYPOTHESES

2.1 | Green cryptos and individual barriers to invest

In response to the high environmental impact of traditional cryptos, this industry has been transitioning towards greener and, hence, more sustainable cryptos (Stonberg, 2021). These environmentally conscious alternatives prioritize energy efficiency and sustainability, employing less-energy-intensive mining approaches and renewable energy sources to reduce carbon footprints (De Vries, 2023; Lacey, 2024). Despite the environmental benefits and technological advancements of green crypto, investors may still be reluctant towards these alternatives (Gutsche & Zwergel, 2020; Statista, 2023b). When turning to the marketing literature, Acuti et al. (2022) identify a general framework explaining such reluctance. Through cognitive processes including biases about product perceptions, as well as self-perceptions, consumers often develop aversive emotional states towards sustainable alternatives. On the one hand, it has been repeatedly shown that consumers do not believe that sustainable products perform equally as traditional ones (see Luchs & Kumar, 2017), and often also enjoy them less (Herédia-Colaço & Coelho do Vale, 2018). In a similar vein, green crypto may be perceived as riskier, less profitable or less secure due to different mining approaches or less established than traditional cryptos (Husain et al., 2023). On the other hand, consumers might feel social judgments when choosing sustainable alternatives, as sustainable

consumption is often linked to negative stereotypes that might be incongruent with a consumer's self-perception (Valor et al., 2018). Given that the crypto market is strongly driven by influencers and social media (Yamamoto et al., 2020), such mechanisms are likely present in this domain. Friede (2019) developed a framework of barriers to these investment options to explain why investors reject sustainable investment. Next to external influences, including firm-, market- and regulatory-based factors, individual elements are emphasized as playing an essential role in these decisions. In this sense, one of the most prominent individual biases keeping private investors from making sustainable choices is short-termism (Friede, 2019; Slawinski et al., 2017). Short-termism typically enhances performance orientation and the pursuit of immediate rewards (Caldecott & McDaniels, 2014). While the capacity of FOMO appeals to stimulate investor behavior aligns with short-termism to promote a crypto-asset, its connection to more sustainable and inherently long-term-oriented alternatives is questionable since it may affect perceptions of congruency. It is interesting to see if FOMO appeals, which were shown to enhance feelings of pleasure to invest and reduce anticipated regret of investing, are not actually incongruent with a more long-term-oriented, rational mindset, which would enhance the chances for sustainable investment choices.

2.2 | Influencer marketing

Influencers have been shown repeatedly to have a big impact on consumer behavior (see Gerrath & Usrey, 2021). Their perceived closeness to the consumer differentiates them from traditional celebrity endorsers. At the same time, their enhanced reach compared to offline interactions makes their use more scalable than traditional personal word of mouth (Wies et al., 2023). This combination often results in strong parasocial relationships between influencers and consumers, leading consumers to mimic the behavior of influencers (Ki & Kim, 2019). Such imitative behavior is often driven by the feeling of missing out on something (Dinh & Lee, 2022) and is a major reason why influencers have played a pivotal role in the hype around cryptos (Shiva & Singh, 2019). Yet, as for most marketing messages, the persuasiveness of influencer communication depends to a large degree on the message content, as well as the message frame (Mulcahy et al., 2024). The message must be believable and align with the influencer and the advertised product. Several studies have pointed out that such congruence is pivotal to persuasive influencer marketing (see Han & Balabanis, 2024; Torres et al., 2019). Amongst others, FOMO effects have been repeatedly linked to influencer activity (see Barari, 2023; Dinh & Lee, 2022), and FOMO appeals have been identified as an effective, and frequently used message in triggering consumer purchases (Friederich et al., 2024; Good & Hyman, 2021; Lee et al., 2023). With some notable exceptions (see Ballestar et al., 2022), the majority of literature has focused on how influencers are linked to consumer attitudes, purchase intentions, and word of mouth for regular commercial products. In comprehensive recent reviews of the

literature (see Tanwar et al., 2022), or meta-analyzes of influencer effectiveness (see Han & Balabanis, 2024), topics such as sustainability, green products, or positive societal impact are absent. Such findings underline the fact that there is a paucity of studies investigating the role of influencers and their messages on sustainable choices (Ballestar et al., 2022). Most existing studies focus on influencer characteristics such as follower count (Pittman & Abell, 2021), experts versus non-experts (Zhang et al., 2021), or green versus non-green influencers (Boerman et al., 2022), while message appeals and in particular FOMO appeals have not been investigated in this field. Yet, Ballestar et al. (2022) present initial evidence from Twitter (now X) that influencers focusing on topics such as climate change and sustainability might use different communication strategies and messages compared to regular influencers. Provided that incongruent messages for sustainable product alternatives are identified as a major barrier to effective communication, it is essential to understand these distinct strategies to improve the promotion and adoption of sustainable products.

2.3 | FOMO and FOMO appeals in marketing

FOMO is a pervasive psychological phenomenon that has gained significant attention in the age of digital connectivity. It refers to the apprehension or unease individuals experience when they believe others engage in rewarding experiences without them (Hayran et al., 2020). This fear is often intensified by the constant exposure to peers' social activities and achievements on social media (Good & Hyman, 2021). While FOMO has been connected to several negative consequences, such as social media overuse or depression (see Dogan, 2019), it has also been studied extensively in consumption contexts. Recently, Argan et al. (2022) developed the concept of consumer-centric FOMO, which explains the impact of FOMO on consumption along two dimensions.

On the one hand, FOMO impacts the desire for belonging, manifested in the desire for praise from others or an increased sensitivity for prestige. On the other hand, FOMO yields anxiety about isolation, which is expressed through the fear of being ignored or falling behind. Both dimensions can trigger consumption choices as coping strategies and typically lead to an enhanced conformity consumption behavior (i.e., choices that would be approved by others or choices that would make the consumer part of a group). Similarly, other studies differentiate between self- and externally initiated FOMO (Good & Hyman, 2021). While the prior is considered a personal trait, the latter is situationally and externally evoked via appeals (Hodkinson, 2019).

Consequently, disciplines like social psychology or sociology have examined FOMO as a relatively stable personality trait, while marketers tend to look at FOMO from a more temporary, situationally induced perspective (Good & Hyman, 2021). Externally evoked FOMO appeals are frequently used by both advertisers and influencers in social media, including the crypto ecosystem, and recent studies on this topic confirm the capacity of these

communication tactics to elicit purchase behavior (see Good & Hyman, 2021), also in the crypto context (see Friederich et al., 2024). In essence, FOMO appeals can be classified as situationally specific triggers of FOMO, irrespective of an individual's predisposition for FOMO in general. Research shows such appeals are powerful, especially in a personal, noncommercial context (Hodkinson, 2019). Typical examples of such appeals include "Don't let your friends go without you" or "I could have vacationed with my friends if I had that credit card" (Good & Hyman, 2021, p.564).

FOMO appeals have been linked to rather impulsive consumption decisions relating to either hedonic experiences or investment choices. Friederich et al. (2024) show that FOMO appeals enhance the willingness to invest in cryptos and demonstrate that consumer decisions are riskier than in the absence of FOMO appeals. Recent findings indicate that the presence of FOMO might hinder sustainable consumption (Bläse et al., 2024), but little is known about if and how FOMO can be used to promote more sustainable and desirable behaviors, like the purchase of greener investment alternatives.

3 | HYPOTHESIS DEVELOPMENT

3.1 | The influence of FOMO appeals in green crypto investment

FOMO appeals have been linked to increased and more risky crypto investment choices, raising the question of whether such findings also extend to green or sustainable cryptos. This might be surprising, given that FOMO, in general, has been linked to negative effects, such as smartphone overuse or depression. When focusing on consumption and investment decisions, FOMO appeals induce a somewhat impulsive, short-term-focused consumption behavior (Friederich et al., 2024; Good & Hyman, 2021), which serves as a coping mechanism to avoid negative feelings resulting from the experienced FOMO. They are situational triggers demanding immediate action. On the other hand, green or sustainable crypto coins are linked to long-term financial horizons (Grill, 2018), while short-termism is identified as a major barrier for consumers to make sustainable investment decisions (Friede, 2019). In line with recent findings, we speculate that a FOMO appeal triggers a stronger investment intention for a normal than for a green crypto (Bläse et al., 2024). Hence, we propose:

H1: Consumers will show higher intentions to invest in normal (vs. green) crypto coins when exposed to an Instagram posting with FOMO appeal (vs. non-FOMO appeal).

3.2 | The mediating role of message congruence

Congruity theory (Osgood & Tannenbaum, 1955) suggests that individuals tend to express positive attitudes toward a focal object when they perceive it to be consistent with their beliefs

(i.e., cognitive frameworks that individuals develop to organize, categorize, and interpret information) about the self and the external environment. Congruence hence describes the extent to which information conforms to consumers' expectations about an event, be it a brand, an ad, or a message, based on consumers' previous beliefs and knowledge. It contends that congruent information is more recalled, preferred, and accepted than incongruent information (see Han & Balabanis, 2024).

In particular, congruence has been found to be vital in the social media domain (see Belanche et al., 2021). For instance, in influencer endorsement, congruence regards the match between the influencer's image, behavior, and expertise and the endorsed entity, such as the message or brand (Breves et al., 2019). Accordingly, the consistency between an Instagram posting (with or without a FOMO appeal) and the specific crypto coin might mediate the relationship between crypto coins and investment intention. As congruity theory is oriented towards communication and persuasion context, individuals likely prefer postings that are cognitively consistent with the related object. Thus, we speculate that FOMO appeals are congruent to normal crypto coins, whereas green crypto coins are not congruent to FOMO appeals in the context of such Instagram postings. Green crypto coins, and therefore sustainability as a concept itself, will likely be perceived as long-term, future-oriented (Grill, 2018).

Additionally, FOMO appeals trigger immediate actions and appear situationally (Friederich et al., 2024). Therefore, we speculate that postings containing FOMO appeals to promote green crypto coins are less likely to be perceived as congruent, leading to lower investment intentions. Previous scholars showed that congruence between relevant attributes of the influencer and the endorsed entity positively influences content, brand, and product evaluations (see Boerman et al., 2022). Yet, on the contrary, ad messages, for instance, that create dissonance or inconsistency can translate into confusion and negative consumer response (see Loken, 2006), thus negatively affecting investment intention. Therefore, in line with previous studies (see Belanche et al., 2021), we propose that:

H2: Message congruence mediates the effect of crypto coins on investment intentions. Specifically, the FOMO appeal (vs. non-FOMO appeal) posting with normal (vs. green) crypto coins enhances the perceived congruence, amplifying the intentions to invest.

3.3 | The mediating role of value perceptions

Value perceptions have been shown to be pivotal in consumer decision-making (see González et al., 2021). While economic perspectives have traditionally limited value to the utility or functionality of a product or service, marketers often rely on a broader view, incorporating social and emotional dimensions of value (Previte et al., 2019). While functional value is more objective, social and emotional values are subjective and personal in nature, which is

why the value dimensions often differ in their impact on purchase intention. Social and emotional values are typically more relevant for purchases related to positive emotions and the self-concept, including excitement, status, social image, or belonging (González et al., 2021). This is often the case for experiences, luxury goods, or trending products and services such as fast fashion (Bläse et al., 2024). This relates to FOMO appeals in several ways, as FOMO appeals trigger purchase behavior by impacting the desire for belonging (Argan et al., 2022) as well as the need to elicit positive emotions such as excitement (Good & Hyman, 2021). It seems, therefore, plausible that effective FOMO appeals might enhance a product or service's emotional and social value perceptions. As previously stated, we assume that the FOMO appeal is more congruent for a normal rather than green crypto, making the appeal more believable and thus more impactful. Therefore, we speculate that the enhancing effect of FOMO for emotional and social value is stronger for a FOMO appeal in combination with a normal rather than a green crypto. Congruity theory posits that perceived alignment between the message and the consumer self-perception can significantly affect the perceived value of the crypto by creating cognitive consistency and enhancing the ties between the influencer and the consumer (Belanche et al., 2021). This happens because social psychological distance is positively related to perceived value, and consumers who feel socially close to the message providers will have a better perception of the offer (Yang, 2022).

In conclusion, the perceived congruity of a communication message can significantly affect the perceived value of the offer by creating cognitive consistency, enhancing self-image congruity, and fostering positive associations between consumers and providers. This aligns with recent findings that show that FOMO might hinder sustainable consumption choices (Bläse et al., 2024). We therefore hypothesize:

H3: Emotional and social value further mediate the effect of crypto coins on investment intentions. Specifically, the FOMO appeal (vs. non-FOMO appeal) posting with normal (vs. green) crypto coins enhances the emotional and social value of the offer, which will amplify the intentions to invest. The relationship between FOMO and investment intentions is sequentially mediated by congruence and perceived value. Figure 1 shows our conceptual framework.

4 | METHODOLOGY

We conducted five studies to achieve the objectives of this research. Utilizing a mixed-methods approach, we first conducted a preliminary lab study replicating previous findings from Friederich et al. (2024) employing neurobiological correlates. With this, we aimed to obtain initial evidence and understand the underlying mechanisms of FOMO's impact on crypto investments. Second, we conducted an online experiment (Study 1) to test our main hypotheses (H1–H3), investigating FOMO and crypto coins' influence on investment

decisions and examining the mediating role of message congruence and value perceptions. Additionally, we conducted another online experiment (Study 2) which replicated the results of Study 1 using a different manipulation to enhance the robustness of our findings. Following this, we conducted a lab experiment with neurobiological correlates to investigate in greater detail the impact of FOMO on the choice between green and traditional cryptos (Study 3). After establishing these effects, we conducted a discrete choice experiment to examine consumer utility perceptions in a realistic investment scenario that uses additional context-typical and relevant variables for investment choices. This approach allowed us to enhance the external validity of our experimental findings. We employed this combination of laboratory neuro studies, online experiments, and choice experiments to provide a robust and comprehensive methodology for investigating how FOMO appeals influence sustainable investment decisions. Figure 1 shows the conceptual overview of the studies.

4.1 | Preliminary study: Setting the scene

This study sets up a social-media-based manipulation for externally induced FOMO to replicate the results of Friederich et al. (2024) in a relevant context for the present study. Furthermore, we explore neurobiological correlates related to FOMO appeal. This helps to build a deeper understanding of the FOMO mechanisms and allows us to shape predictions for further studies in this paper focusing on the interaction of FOMO and crypto coin investments.

4.1.1 | Design and procedure

We set up a two-factor lab experiment (FOMO vs. non-FOMO appeal). In line with recent research on FOMO appeals (see Friederich et al., 2024), we developed and pretested two sets of six meme-like social media posts (Instagram). Memes are the most-used form of online communication (González et al., 2019), and typically involve an

element of humor. While memes can take any format, the most common use applies a background image with additional textual information, which is easy to understand, to share, and can be recycled and adapted to different contexts (Davison, 2012). In this spirit, for the FOMO condition, we chose stock photos displaying typical meme backgrounds (e.g., a person being alone, while everyone else having a conversation) enhanced with comments about FOMO and cryptos (e.g., "When all your friends invested in crypto and you are late to the party"). For the non-FOMO condition, we chose completely unrelated posts showing plants and facts about them (e.g., a picture of a bonsai tree including the text: "The scent of bonsai tree flowers is very mild"), following a similar design structure. We used such unrelated and neutral content because these stimuli certainly do not evoke any FOMO and are further unrelated to an investment context.

In terms of social media platform, Instagram was chosen because it is the most relevant influencer marketing network (Espeute & Preece, 2024). As the largest and most used platform for influencers with over 1.4 billion active users as of 2024 (Dixon, 2024), Instagram offers a familiar setting and medium for effective engagement and outreach (Dencheva, 2024), providing the necessary familiarity and realism of our scenarios. The platform has a wide appeal to audiences from different age ranges (McLachlan, 2024), providing extensive reach across diverse demographics. Additionally, Instagram is a relevant platform for crypto influencers (Rosenberg, 2023), including financial influencers, or "finfluencers," who, while primarily active on Twitter, maintain a significant presence on Instagram (Espeute & Preece, 2024; Pardo, 2023), making it suitable for this study.

After the pretest of the stimuli using a snowball sample of 47 participants, four sets of posts (see Supporting Information S1: Appendix A) were shown to significantly alter the participant's FOMO perceptions ($M_{\text{FOMO}} = 2.95$, $SD = 1.56$; $M_{\text{Non-FOMO}} = 1.82$, $SD = 1.03$; $t(46) = 4.54$; $p < 0.01$) and were comparable in realism and likeability. The study was conducted in the laboratory of a small European university. The 61 participants registered in exchange for course credits. Upon arrival, participants signed a disclaimer approved by the ethical review board of the university. Data

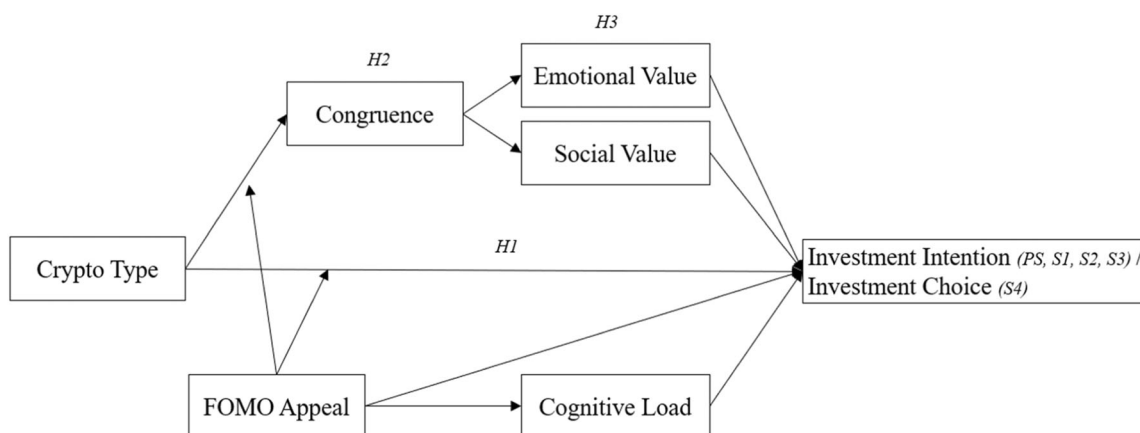


FIGURE 1 Conceptual framework. PS, preliminary study; S1, study 1.

collection and the study administration were carried out via the iMotions 9.3 software package. After viewing a filler video, participants were shown the four FOMO or non-FOMO appeals for at least 15 s each and then shown an investment vignette of a newly launched crypto coin, adapted from Friederich et al. (2024). After completing the tasks, participants were debriefed and disconnected from the sensors. In line with common practice in EEG research, five participants were excluded due to being left-handed, and six more participants had to be dropped due to sensor failures during the procedure, leaving a final sample of 50 usable responses. Descriptive statistics showed that 56% of participants were female. Participants were, on average, between 18 and 24 years old. In total, the sample counts 18 different nationalities of which the majority are Spanish (21), followed by German students (10).

4.1.2 | Measures, coding, and reliability

All neurobiological measures were taken during the participants' exposure to the social media posts, as the total period was 1 min, and therefore, long enough to capture reliable EEG and GSR data. For the EEG, we placed four electrodes in F3, F4, FZ, and PZ positions following the international 10/20 standard. The EEG raw data were collected via the NIC software package and streamed to iMotions. In iMotions, the raw EEG data were transformed through the standard bandpass filter protocol to separate alpha (8–12 Hz) and theta (4–7 Hz) waves, which were subsequently used to calculate the outcome measures. For the frontal asymmetry measures, we focus on the alpha waves of F3 and F4 in line with Shepherd (2021). Positive emotions increase the left prefrontal cortex activity and produce an approximation behavioral response. Negative stimuli are related to reduced activity in the right cerebral hemisphere (higher level of alpha power), generating an avoidance response. For power spectral density, we use the theta frequency of FZ and PZ, which is related to cognitive load. As cognitive activity increases, theta activity increases (synchronizes) (Klimesch, 2005).

GSR is a well-established tool to measure the level of emotional arousal (see Wang et al., 2018). Two electrodes were placed on the index and the ring finger of the participants' left hand, given that the study navigation was done with the mouse placed on the right side of the computer. The raw signal was processed to isolate situational peaks and their respective amplitude. This allows us to do a peak count for the time when participants processed the social media posts, as well as to calculate the average amplitude of the peaks to proxy participants' arousal. Finally, we measured investment intention on a two-item measure (e.g., "My intention to invest is high") adapted from Putrevu and Lord (1994).

4.1.3 | Results and discussion

We ran a series of analyses of variance (ANOVAs) to investigate the effect of FOMO appeals on investment intention, as well as on the

neurobiological indicators. For investment intention, we observe a significant effect of FOMO ($M_{FOMO} = 4.34$, $SD = 1.52$; $M_{Non-FOMO} = 2.98$, $SD = 1.45$; $F(1,49) = 11.73$; $p < 0.01$, $r = 0.44$) replicating the results of Friederich et al. (2024). When turning to the neurobiological indicators we observe a significant effect of FOMO on the power spectral density theta ($M_{FOMO} = 10.86$, $SD = 1.89$; $M_{Non-FOMO} = 8.69$, $SD = 1.94$; $F(1,49) = 15.93$; $p < 0.01$, $r = 0.49$), as well as for the squared indicator ($M_{FOMO} = 121.34$, $SD = 39.35$; $M_{Non-FOMO} = 79.15$, $SD = 34.51$; $F(1,49) = 16.23$; $p < 0.01$, $r = 0.50$), showing that participant's cognitive activity was higher when processing the FOMO vs. the control appeals. For the emotional indicators frontal asymmetry alpha ($M_{FOMO} = -0.17$, $SD = 0.19$; $M_{Non-FOMO} = -0.19$, $SD = 0.17$; $F(1,49) = 0.21$; $p > 0.1$, $r = 0.07$), sum of total peaks ($M_{FOMO} = 3.60$, $SD = 4.29$; $M_{Non-FOMO} = 3.12$, $SD = 3.18$; $F(1,49) = 0.20$; $p > 0.1$, $r = 0.06$), and average peak amplitude ($M_{FOMO} = 0.08$, $SD = 0.16$; $M_{Non-FOMO} = 0.04$, $SD = 0.08$; $F(1,49) = 1.09$; $p > 0.1$, $r = 0.15$) we do not observe any significant differences. It is notable, however, that all three indicators are marginally higher in the FOMO condition, showing mildly higher approach (frontal asymmetry) and mildly higher arousal (sum of total peaks, peak amplitude).

To get a deeper understanding of the observed effects, a mediation analysis was conducted to investigate further the mediating role of power spectral density ($M1$) and power spectral density squared ($M2$) in the relationship between FOMO appeal (X) and investment intention (Y) (Process Model 4; 5000 bootstrapped samples; Hayes, 2017). Results indicated that the paths from FOMO appeal to power-spectral density ($\beta = 2.16$, $SE = 0.54$, $p < 0.001$) and power spectral density squared ($\beta = 42.18$, $SE = 10.47$, $p < 0.001$) were positive and significant. The direct effect of power spectral density squared on investment intention was negative ($\beta = -1.07$, $SE = 0.74$, $p = 0.15$), while the direct path of power spectral density on investment intention was positive ($\beta = 0.06$, $SE = 0.03$, $p = 0.12$). When looking at the mediation results, the direct effect of FOMO appeal on investment intention remains significant, ($\beta = 1.56$, $SE = 0.45$, $CI90[-0.80;2.23]$), and the overall indirect effect of the mediators is nonsignificant ($\beta = -0.25$, $SE = 0.25$, $CI90[-0.57;0.24]$). The indirect effect for power spectral density is positive and nonsignificant ($\beta = 2.34$, $SE = 1.49$, $CI90[-0.09;4.74]$), while the effect for power spectral density squared is negative and significant at the 10% level ($\beta = -2.54$, $SE = 1.57$, $CI90[-5.02;-0.01]$). The results show mild evidence for a nonlinear mediation effect of power spectral density on investment intention. The effect seems to take an inverted U shape in that increasing cognitive activity in the FOMO condition only increases investment intention up to a certain point. Too much cognitive activity will lower investment intention again. The effect is weak and by no means the full explanation, yet it provides us with useful insight for the rest of the studies.

Accordingly, it seems that FOMO appeals trigger higher cognitive processing, as well as investment intention. Even though nonsignificant, the results show a mildly higher approach motivation and emotional arousal for the FOMO appeals. A first interesting cue is the nonlinear effect of cognitive activity, which indicates that if participants "overthink" in the FOMO condition, the FOMO effect is

reduced. This is in line with Friederich et al. (2024), who posit that warning messages can be an effective tool to mitigate the FOMO effect. This might also sharpen our prediction for FOMO appeals in the case of green cryptos. Given that sustainable investment decisions are typically related to a rational, long-term decision-making perspective, we might assume that they trigger in-depth processing and higher cognitive activity (Yarkoni et al., 2005). It is, therefore, likely that FOMO appeals will actually backfire when used in combination with sustainable product offers, as the connected deeper processing might actually invert the effect of the FOMO appeal. Simply speaking, FOMO and green options, such as green crypto coins, might contradict themselves, leading to a negative consumer response due to the lack of congruency between FOMO and sustainable investments.

4.2 | Study 1: Crypto coins and FOMO appeals influencing investment intentions, message congruence, and value perceptions

Study 1 builds on the preliminary study by using the same FOMO appeal, and additionally introducing the green and the normal crypto, to test H1. Additionally, message congruence and consumer value perceptions were measured to test H2 and H3.

4.2.1 | Design, procedure, and measures

We used a 2 (FOMO vs. non-FOMO appeal) \times 2 (normal vs. green crypto) between-subjects design to test the hypotheses. Participants were randomly exposed to the FOMO or non-FOMO appeal

condition established in the preliminary Study. Participants were then randomly exposed to the condition of normal versus green crypto by receiving information about the coin's characteristics in the form of a newspaper vignette similar to the constant vignette from the preliminary study. The vignettes were equal in functional attributes of the crypto coin, to avoid confounding factors like different fundamentals (Supporting Information S1: Appendix A). Participants were randomly exposed to the respective conditions, and afterward, participants submitted scores on message congruence with a three-item measure (Xu & Pratt, 2018), on the perceived value dimensions with three-item measures each (Sweeney & Soutar, 2001) and investment intention (Putrevu & Lord, 1994). All items were measured using a 7-point Likert scale, and all scales achieved high reliability (Cronbach's alpha was >0.7; see Supporting Information S1: Appendix B). We used G*Power software to determine the minimum sample size. Therefore, we recruited 200 US-based master workers from Amazon MTurk and obtained a final sample of 181 participants. The demographics indicated that the respondents had a mean age of 45 years (SD = 10.39) and that 58% were male.

4.2.2 | Results and discussion

The results of a 2 (FOMO vs. non-FOMO appeal) \times 2 (normal vs. green crypto) between-subjects ANOVA indicates a nonsignificant main effect of the FOMO appeal ($F(1,177) = 0.02, p > 0.1, r = 0.01$) and a nonsignificant main effect of the crypto coin ($F(1,177) = 0.01, p > 0.1, r = 0.01$) on investment intention. Importantly, the interaction of FOMO appeal and the crypto coin was found significant ($F(1,177) = 10.53, p < 0.01, r = 0.25$) in support of H1. The planned

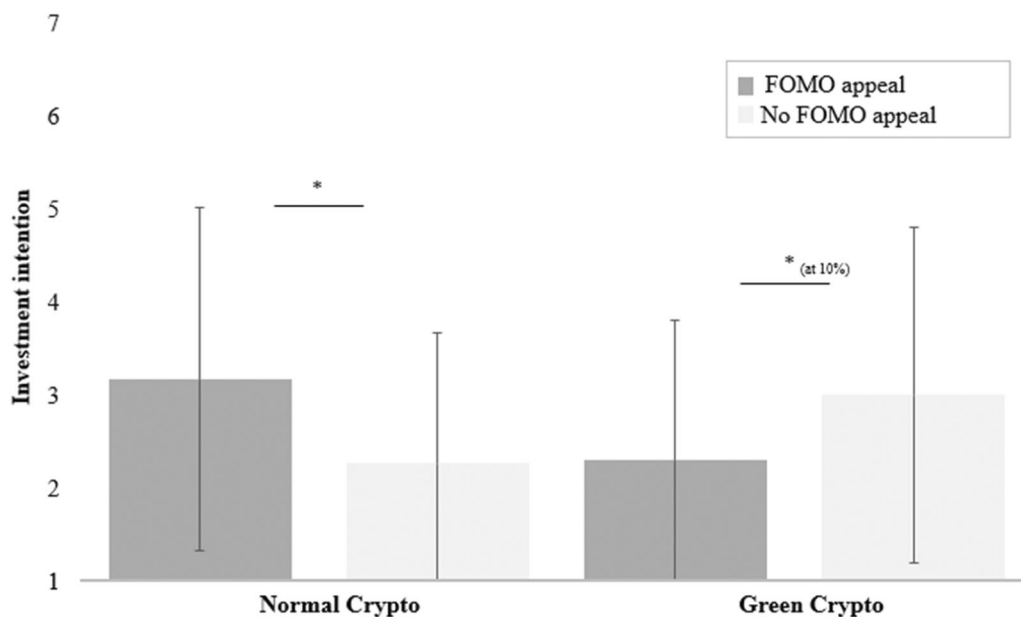


FIGURE 2 Fear-of-missing out (FOMO) appeal condition in interaction with the crypto coin.

comparison analysis (Figure 2) revealed that participants in the normal crypto coin condition showed higher investment intention in the FOMO appeal than in the non-FOMO appeal condition ($M_{\text{NormalCrypto-FOMO}} = 3.17$, $SD = 1.85$; $M_{\text{NormalCrypto-Non-FOMO}} = 2.26$, $SD = 1.41$; $F(1,177) = 6.92$; $p < 0.01$, $r = 0.20$). On the contrary, the effect is reversed at a 10% level in the green crypto coin condition ($M_{\text{GreenCrypto-FOMO}} = 2.30$, $SD = 1.50$; $M_{\text{GreenCrypto-Non-FOMO}} = 3.00$, $SD = 1.81$; $F(1,177) = 3.86$; $p = 0.051$, $r = 0.15$).

To test hypothesis 2, a moderated mediation analysis was conducted (Process Model 8; 5000 bootstrapped samples; Hayes, 2017). The findings showed that the crypto coin condition (X) had a significant positive effect on message congruence (M) ($\beta = 2.08$, $SE = 0.28$, $p < 0.001$), as well as FOMO (W) ($\beta = 3.80$, $SE = 0.29$, $p < 0.001$) and the interaction between the crypto coin condition and FOMO ($\beta = -2.47$, $SE = 0.42$, $p < 0.001$). For investment intention, message congruence had a significant positive effect ($\beta = 0.45$, $SE = 0.08$, $p < 0.001$). Further, FOMO showed a marginal negative effect ($\beta = -0.80$, $SE = 0.44$, $p = 0.07$) while the interaction showed nonsignificant results ($\beta = -0.48$, $SE = 0.49$, $p > 0.1$).

With regard to the mediation effects, results suggest that the crypto coin condition has a nonsignificant direct effect in the absence of FOMO ($\beta_{\text{Non-FOMO}} = -0.19$, $SE = 0.35$, $p > 0.1$) and a significant direct effect in the presence of FOMO ($\beta_{\text{FOMO}} = -0.68$, $SE = 0.33$, $p < 0.05$). For the indirect effects, the crypto coin condition showed significant effects in the absence of FOMO ($\beta_{\text{Non-FOMO}} = 0.93$, $SE = 0.22$, $CI95[0.52;1.42]$) while showing nonsignificant effects in the presence of FOMO ($\beta_{\text{FOMO}} = -0.17$, $SE = 0.14$, $CI95[-0.46;0.08]$), suggesting partial mediation. The index of the moderated mediation was significant ($\beta = -1.11$, $SE = 0.28$, $CI95[-1.71;-0.59]$), supporting H2.

In the next step, to test whether social and emotional value perceptions (H3) further mediate our findings regarding investment intentions, we ran an analysis for serial moderated mediation (Hayes, 2017), with crypto coin condition (normal vs. green crypto) as the independent variable, FOMO as the moderator, message congruence as the first mediator, the social value and emotional value dimension as the second mediator, and investment intentions as the dependent variable. We used model 85 from the process macro to test our prediction. The results show that the path, implying crypto coin, message congruence, emotional value, and investment intentions is significant ($\beta = -0.51$, $SE = 0.27$, $CI90[-1.13;-0.07]$). Yet, the full path with social value was found to be nonsignificant ($\beta = 0.06$, $SE = 0.06$, $CI90[-0.08;0.14]$), thus, partially confirming H3.

In summary, individuals show higher investment intentions in the normal crypto coin condition when exposed to FOMO rather than non-FOMO appeals. In turn, the green crypto coin elicited higher investment intention in the condition of non-FOMO appeal. The results of the study further show that this effect is partially explained by message congruence and emotional value. Accordingly, normal crypto coins and FOMO appeals are perceived as

congruent, while the same applies to non-FOMO appeals and green crypto coins. Additionally, we show that emotional value further mediates the relationship between the crypto coin and investment intention. Interestingly, the social value dimension did not mediate this effect.

4.3 | Study 2: Replication of the findings with new stimuli

4.3.1 | Design, procedure and measures

To replicate previous findings, we designed another 2 (FOMO vs. non-FOMO appeal) \times 2 (normal vs. green crypto) between-subjects experiment. In this study, the FOMO manipulation was redesigned to have a closer match in image esthetics and image content. As the last study established the effects of FOMO-inducing meme-like posts versus completely unrelated, nature-focused content, confounding effects from the nature-related stimuli on the green crypto could not be entirely excluded. Furthermore, the presence of people and the social exclusion shown on its own might have been enough to trigger feelings of being left out, which is a dimension of FOMO. To show that our effects can be traced to the FOMO-inducing messages and that they are not confounded by the colors and the content of the image, we developed four new pairs of meme-like social media posts. Each pair consists of the same background image, only the message of the post, and the comments are changed (e.g., FOMO: "When everyone is talking about crypto and you have no clue," No FOMO: "When you prefer your silence over senseless talks") (see Supporting Information S1: Appendix A). We conducted a pretest on Amazon MTurk with 40 US-based respondents, who were paid \$0.50 to participate. Using a series of paired sample t-tests, the results show that the FOMO-inducing posts evoke higher FOMO perceptions than the non-FOMO-inducing posts ($M_{\text{FOMO}} = 2.45$, $SD = 1.33$; $M_{\text{Non-FOMO}} = 1.54$, $SD = 0.58$; $t(39) = 5.08$; $p < 0.001$). The posts were comparable in credibility ($M_{\text{FOMO}} = 2.15$, $SD = 1.17$; $M_{\text{Non-FOMO}} = 2.21$, $SD = 1.02$; $t(39) = -0.44$; $p > 0.1$) and humor ($M_{\text{FOMO}} = 3.69$, $SD = 1.23$; $M_{\text{Non-FOMO}} = 3.77$, $SD = 1.24$; $t(39) = -0.58$; $p > 0.1$). The principal study was conducted on Amazon MTurk, using US-based master workers who were compensated \$1.00 to participate. We managed to recruit 135 respondents who had experience with crypto and online trading. After controlling for attention checks, we were left with a final sample of 126 participants. The participants had a mean age of 44 years ($SD = 9.21$). 57% were male, and 72% had an undergraduate university education or higher. Participants were randomly exposed to the FOMO and non-FOMO conditions and afterwards were presented with the green or the normal crypto vignette. Then, participants submitted their congruence perception, investment intention, and value perceptions using the same scales as in the previous studies. All scales had high reliability (all Cronbach's alpha > 0.80 , see Supporting Information S1: Appendix B).

4.3.2 | Results and discussion

To test our main hypothesis, a 2 (FOMO vs. non-FOMO appeal) \times 2 (normal vs. green crypto) between-subjects ANOVA was conducted. Results show a nonsignificant main effect of the crypto coin type ($F(1,122) = 0.53, p > 0.1, r = 0.06$) and a significant main effect of FOMO appeal ($F(1,122) = 4.19, p < 0.05, r = 0.18$) on investment intention. In support of the prediction, a significant interaction effect of FOMO appeal and the crypto coin was found ($F(1,122) = 12.14, p < 0.01, r = 0.30$). We subsequently used planned contrasts to further investigate the interaction. The results show that participants exposed to the normal crypto showed lower investment intention in the non-FOMO compared to the FOMO appeal condition ($M_{\text{NormalCrypto-FOMO}} = 4.01, SD = 1.88; M_{\text{NormalCrypto-Non-FOMO}} = 2.33, SD = 1.51; F(1,122) = 15.03; p < 0.01, r = 0.33$). For the green crypto, no significant differences were found ($M_{\text{GreenCrypto-FOMO}} = 2.73, SD = 1.73; M_{\text{GreenCrypto-Non-FOMO}} = 3.17, SD = 1.73; F(1,122) = 1.05; p > 0.1, r = 0.09$). In the non-FOMO condition, the green crypto shows a higher investment intention than the normal crypto ($F(1,122) = 3.92; p = 0.05, r = 0.18$), while in the FOMO condition the green crypto has a lower investment intention than the normal crypto ($F(1,122) = 8.60; p < 0.01, r = 0.26$). Figure 3 shows the means for the crypto coin scenario by the FOMO and non-FOMO appeal condition.

To investigate our hypotheses related to mediation effects of congruence and perceived value, we run a serial moderated mediation analysis, with crypto type as the independent variable (X), FOMO as the moderator (W), and congruence, emotional and social value as the potential mediators (M), on investment intention (y) (Process Model 85, 5000 Bootstraps; Hayes, 2017). The results show a significant moderated mediation path from crypto type via emotional value to investment intention ($\beta = -0.95, SE = 0.43,$

CI95[-1.85;-0.18]). All other potential paths are nonsignificant, showing only support for H3, the mediating effect of emotional value.

4.4 | Study 3: A detailed examination of FOMO for Green and normal cryptos with neurobiological sensors

4.4.1 | Design and procedure

We set up a two-factor lab experiment in which we investigated the impact of FOMO on the choice of either green or normal cryptos in greater detail, also exploring neurobiological correlates similar to the preliminary study. The study was carried out at the laboratory of a small European university, and participants registered in exchange for course credit. Upon arrival, participants signed a consent form and were then connected to the EEG and the GSR sensors, which were configured in the same way as in the preliminary study. The study was designed and administered in iMotions 9.4 to collect the sensory data. After performing a sensor calibration task, participants were exposed to an unrelated video for 1 min, which served as a baseline measure. Subsequently, all participants were exposed to the same FOMO stimuli from Study 2 and then subsequently exposed to either the normal or the green crypto, using the same vignettes as in previous studies. In total, 68 participants were recruited, yet after controlling for attention checks, dominant hand and continuous sensor signals, a final sample of 60 participants was obtained. Descriptive statistics showed that the participants were, on average, 21 years old and that 58% were male. 45% were undergraduate students, while 55% were currently enrolled in postgraduate programs. 27% were French, 21% Spanish, and 20% German.

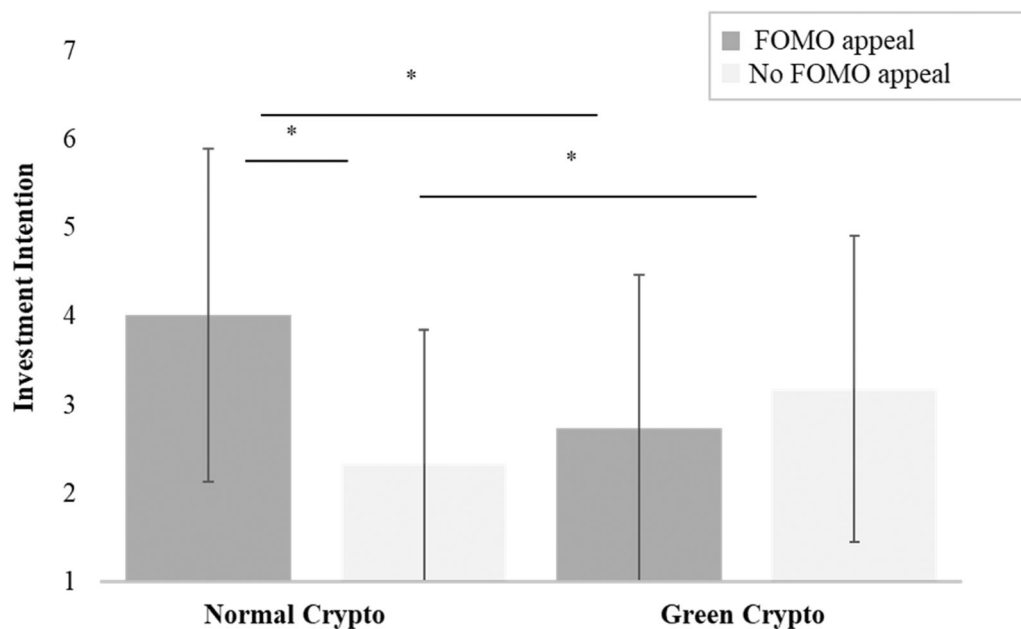


FIGURE 3 Fear-of-missing out (FOMO) appeal condition in interaction with the crypto coins.

4.4.2 | Measures, coding, and reliability

The measurement scales for investment intention (Putrevu & Lord, 1994) and value perception (Sweeney & Soutar, 2001) were used as in Studies 1 and 2. The measures for the neurobiological sensors were collected using the same setup as in the preliminary study, including the EEG with four electrodes and the GSR with two electrodes. In addition to the Frontal Asymmetry Alpha and the Power Spectral Density Theta, we collected the intersubject correlation for the theta waves. Intersubject correlation, or neural similarity, is a measure of response similarity to a given stimulus, which has repeatedly been used to predict purchase and consumption decisions (see Barnett & Cerf, 2017). For the neurobiological measures, we focus on the moment of exposure to either the normal or the green crypto vignette. The vignette came along with instructions on how to process the given information carefully and reflect on the investment decision for at least 1 min to capture the neuro signals.

4.4.3 | Results and discussion

We ran an ANOVA analysis to test the effect of the green versus the normal crypto on investment intention and observed a significant effect ($M_{\text{Normal}}=4.22$, $SD=1.41$; $M_{\text{Green}}=3.41$, $SD=1.52$; $F(1,59)=4.41$; $p<0.05$, $r=0.27$). The effect remains stable when controlling for prior online investment experience, and while prior online investment experience does have a positive effect on investment intention, there is no significant interaction between the two factors. To replicate our previous findings, we run a serial mediation analysis (Process Model 6; Hayes, 2017), using the crypto coin condition (normal vs. green crypto) as the independent variable, message congruence as the first mediator, and the social value and emotional value dimension as the second mediator, and investment intentions as the dependent variable. The results show an insignificant direct effect of crypto coin condition on

investment intention ($\beta=-0.16$, $SE=0.31$, $CI\ 90[-0.37;0.67]$), yet a significant joint indirect effect ($\beta=0.65$, $SE=0.27$, $CI\ 90[0.22;1.09]$). More specifically, we find that the only significant indirect path is from crypto coin condition to congruence and via emotional value to investment intention ($\beta=0.16$, $SE=0.12$, $CI\ 90[0.02;0.39]$), while all other paths are nonsignificant. These findings provide further support for hypotheses 2 and 3. When turning to the neurobiological indicators, we find no significant differences for frontal asymmetry alpha ($M_{\text{Normal}}=-0.25$, $SD=0.39$; $M_{\text{Green}}=-0.21$, $SD=0.30$; $F(1,59)=0.20$; $p>0.1$, $r=0.06$), power spectral density theta ($M_{\text{Normal}}=6.42$, $SD=2.43$; $M_{\text{Green}}=5.23$, $SD=3.87$; $F(1,59)=1.97$; $p<0.1$, $r=0.18$), peaks ($M_{\text{Normal}}=3.10$, $SD=4.62$; $M_{\text{Green}}=4.76$, $SD=6.03$; $F(1,59)=1.48$; $p>0.1$, $r=0.16$) and average peak amplitude ($M_{\text{Normal}}=0.05$, $SD=0.07$; $M_{\text{Green}}=0.05$, $SD=0.08$; $F(1,59)=0.18$; $p>0.1$, $r=0.05$). Unfortunately, therefore the neuro-correlates give very little additional information on emotional and cognitive differences during the decision-making process. If at all, the greatest differences are observed from the power spectral density theta, indicating somewhat higher cognitive effort for the normal crypto coin, and the peak count, which indicates somewhat higher emotional arousal for the green crypto coin. These results, however, do not allow us to conclude these effects. Furthermore, when inspecting the intersubject correlation of the theta waves, we can see a slightly higher correlation for the normal crypto ($r=0.34$) than for the green crypto ($r=0.30$), indicating a somewhat more synchronous response to the normal crypto than the green crypto, after being exposed to FOMO stimuli. In Figure 4, we highlight the significant paths of our hypothesis tests.

4.5 | Study 4: Discrete choice experiment

The previous studies shed light on the interplay between FOMO appeals, crypto coins, and investment intentions. Based on these findings, we extend our research with a discrete choice experiment

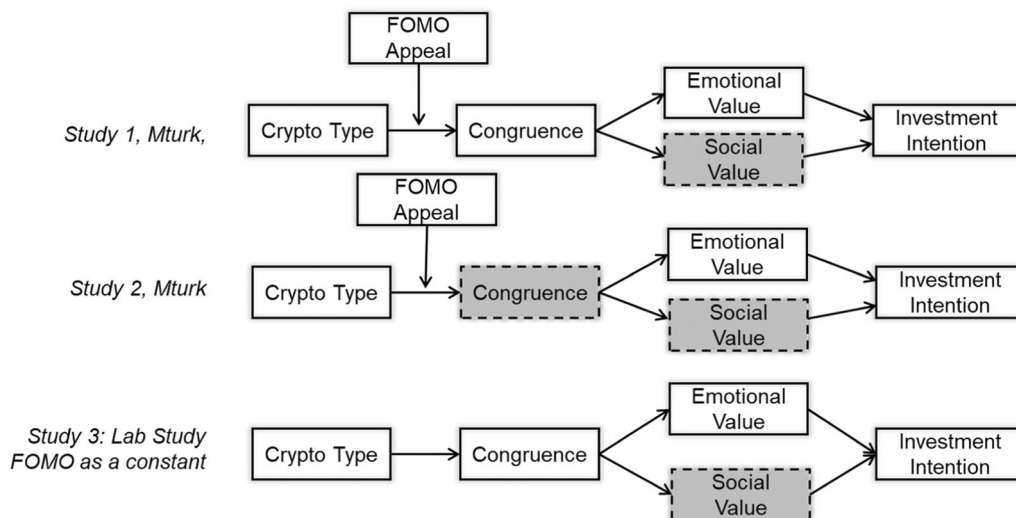


FIGURE 4 Visual overview of the results, study 1-3.

within the context of sustainable crypto investment. Several rationales underpin this choice. First, using a discrete choice experiment provides a platform conducive to simulating real-world decision-making processes, thereby enhancing the practical relevance of our findings within sustainable crypto investment (Traets et al., 2020). Second, by leveraging this experimental approach, we quantitatively assess the relative importance of various attributes, thereby examining the primary drivers influencing investor decisions. This aligns with previous literature, wherein discrete choice experiments bridge the gap between theoretical enhancements and their practical applications (see Schamp et al., 2024). Third, we aim to contribute to the contemporary discourse regarding sustainable investment behaviors within the influencer marketing domain by employing a methodologically diverse approach encompassing neurobiological lab experiments, online studies, and discrete choice experiments. Therefore, we employ a discrete choice experiment to investigate consumer perceptions of utility pertaining to crypto coins and FOMO appeals, thereby further enriching our understanding of sustainable investment behaviors in contemporary contexts.

4.5.1 | Conjoint analysis attributes

The results from the previous studies, recent literature, as well as the practical importance of sustainable investments, guided the identification and selection of the setting, attributes, and levels. We included crypto coins and FOMO as the first attribute. We merged the crypto coin and FOMO condition to incorporate the interaction upfront. We did so due to the assumption that all interactions are negligible and because of our interest in the main effects only (see Alamri et al., 2023). As a second attribute, we included the evolution of the crypto price path. For evaluating potential financial asset purchases, consumers increasingly rely on the graphical display, that is, the price path of such assets (Nolte & Schneider, 2018). Based on this reasoning, the crypto coin price path attribute comprised three levels: downward, neutral, and upward price trend (with a 30-day price path period following Stallen et al. [2021]). As a third attribute, we included crypto governance and regulations. This attribute captures the regulatory bodies' approval and support for cryptos. This matter became a critical factor in the sustainable investment domain (see Popescu et al., 2022). The regulatory framework for crypto assets is frequently discussed by global authorities and institutions and, therefore, is included as a potential decision-influencing element (Narain & Moretti, 2022). The attribute describes the support of regulatory institutions regarding acceptance and approval of the crypto coin (see Supporting Information S1: Appendix A for included attributes, levels, and stimuli used). The inclusion of the aforementioned attribute, albeit not directly addressed in our prior studies, was considered important due to its significance within the domain of sustainable investment from a consumer-centric standpoint (see Popescu et al., 2022). This consideration aligns with the overarching objective of the study, which aims to comprehensively capture salient factors influencing sustainable investment behavior. Moreover, the discrete choice experiment enables us

to incorporate multiple attributes, enhancing the analysis's breadth and granularity. In an effort to provide practitioners with guidance informed by empirical evidence, we included the aforementioned attributes within the experimental framework.

4.5.2 | Design and analysis

For the design generation of the discrete choice experiment, we used the R package "idefix" based on Traets et al. (2020) to obtain a design with three attributes. The attributes varied at four and three levels, each requiring respondents to evaluate 18 choice sets. All attributes were dummy-coded, and the choice sets were presented in random order. The study included one practice round so that participants could familiarize themselves with the format of the survey. In the study, participants were asked to choose the most preferred investment scenario option (see Supporting Information S1: Appendix A). We recruited a final sample of 391 US-based participants via Amazon MTurk who were compensated \$1,00 for their participation. The respondents had a mean age of 37 years (SD = 10.91), and 61% were male. All respondents were pooled to estimate one set of part-worth utilities for the entire sample. For the analysis, the reference category was consumers' choice (coded: 1). The results revealed that for the crypto coin and FOMO attribute, participants' utility was increased with the non-FOMO and light green ($\beta_{\text{Non-FOMO} \times \text{LightGreen}} = 0.52$, SE = 0.05, $p < 0.001$), as well as dark green coin ($\beta_{\text{Non-FOMO} \times \text{DarkGreen}} = 0.61$, SE = 0.05, $p < 0.001$) compared to the reference (FOMO and normal coin), in line with findings of study 2 and 3. The difference between the coefficient for the non-FOMO light and dark green coin was found to be statistically significant ($X^2(1) = 116.8$, $p < 0.001$). Further, participants derived lower utility from the non-FOMO and normal coin ($\beta_{\text{Non-FOMO} \times \text{Normal}} = -0.05$, SE = 0.05, $p > 0.05$) compared to the reference with FOMO and normal coin, also in line with previous results, yet nonsignificant. Regarding the crypto price path evolution, participants' utility was increased with the neutral and upward trend level ($\beta_{\text{Neutral}} = 0.23$, SE = 0.05, $p < 0.001$; $\beta_{\text{Upward}} = 0.99$, SE = 0.04, $p < 0.001$) compared to the reference (downward price path). The difference between the coefficient for both levels was found to be significant too ($X^2(1) = 306.8$, $p < 0.001$).

In terms of the governance attribute, the utility was increased with the moderate and full governance support level ($\beta_{\text{Moderate}} = 0.65$, SE = 0.05, $p < 0.001$; $\beta_{\text{Full-Support}} = 1.02$, SE = 0.05, $p < 0.001$), compared to the reference (no support), showing face validity. Also, for these attribute levels, the difference between the coefficient was significant ($X^2(1) = 78.1$, $p < 0.001$). We controlled for age, gender, education, and investment frequency. Table 1 illustrates the result of the study.

4.5.3 | Results and discussion

The results show that governance and regulatory issues related to crypto coins are the most influential attribute in influencing consumer investment choice. In line with the previous findings of our studies,

TABLE 1 The estimated part-worth utilities.

Attribute name	Attribute level	Reference level	Estimate	SE	p-Value	Lower CI	Upper CI
Crypto Coin × FOMO	Normal coin × non-FOMO	Normal coin × FOMO	-0.05	0.05	0.23	-0.14	-0.04
Crypto Coin × FOMO	Light green coin × non-FOMO	Normal coin × FOMO	0.52	0.05	0.00	0.42	0.62
Crypto Coin × FOMO	Dark green coin × non-FOMO	Normal coin × FOMO	0.61	0.05	0.00	0.52	0.71
Crypto price path evolution	Neutral/stable price trend	Downward price trend	0.23	0.05	0.00	0.13	0.32
Crypto price path evolution	Upward price trend	Downward price trend	0.99	0.04	0.00	0.91	1.08
Governance/ regulatory support	Moderate regulatory support	No regulatory support	0.65	0.05	0.00	0.56	0.75
Governance/ regulatory support	Full regulatory support	No regulatory support	1.02	0.05	0.00	0.94	1.11

Abbreviation: FOMO, fear of missing out.

consumers derived higher utility for green coins with non-FOMO appeal condition. In contrast, they derived lower utility for the normal coin with non-FOMO compared to the normal coin with FOMO (yet nonsignificant), aligning with recent findings in the crypto and FOMO context (see Friederich et al., 2024). Most importantly, from a policymaker's perspective, consumers derive higher utility from non-FOMO and green coins. Hence, FOMO might not be used as a trigger to push sustainable investment, as suggested in the previous studies. On the other hand, regulatory backup for crypto coins, especially green crypto coins, might foster consumers' green crypto investment.

5 | GENERAL DISCUSSION AND IMPLICATIONS

The present research investigates how FOMO appeals in social media affect individuals' investment intentions in green cryptos. Figure 4 shows a graphical overview of our findings which were obtained through a series of multi-method studies. First, to our knowledge, this is the first study that evidence that FOMO and sustainable behaviors might contradict, leading consumers to reject investments in these socially oriented initiatives. Thus, the main contribution of this study suggests that social media influencers should not use FOMO-appeals as a message frame to promote prosocial behaviors in sustainable crypto investments. Second, the findings suggest that perceived message congruence (S1 and S3) and emotional value mediate (S1, S2, S3) the negative influence of FOMO on green crypto investments. Contrary to our expectations, social value does not play a significant role in this chain of effects. Finally, the study provides practical guidance on promoting green crypto investments with a discrete choice experiment highlighting the importance of governance

regulation and recent price path evolutions yet replicating our main findings on FOMO.

Third, the experiments (S3) integrating neurobiological sensors reveal that using FOMO appeals to promote normal cryptos and green cryptos triggers differential psychological responses from individuals. The preliminary study shows that under FOMO conditions, individuals present higher levels of power spectral density in the parieto-central and frontal-central regions of the brain cortex, indicating higher levels of cognitive effort. This effect is connected to investment intention in a nonlinear way, such that cognitive activity that is too high reverses the FOMO effect (preliminary study). Furthermore, we show that when individuals are exposed to a FOMO appeal, the intersubject correlation is higher for individuals exposed to a normal crypto than those exposed to a green crypto, demonstrating that the reactions towards a normal crypto are more aligned than those for a green crypto. This gives further evidence to our results, as higher intersubject correlation can be linked to higher commercial success of products and services (Barnett & Cerf, 2017).

5.1 | Theoretical contributions

This research contributes to extant literature on influencer marketing and sustainable investment behavior. First, the study demonstrates that there is no "upside" to FOMO appeals. Given the persuasive power of influencer marketing (see Gerrath & Usrey, 2021), the study showed that Instagram postings with FOMO appeals discourage sustainable behavior in the sense of green crypto investments. The study thus contributes to the existing literature about influencer marketing and sustainable behavior (see Ballestar et al., 2022) by evidencing that FOMO appeals, although a frequent message tactic

applied in such a domain, are potentially backfiring in fostering green investments by potentially driving short-term, impulsive behavior.

Second, the study provides insights that this effect is produced via message congruence and subsequently value perceptions. First, the green crypto coin and FOMO appeals decrease consumers' perceptions of the congruence between the message on social media and the offered product. As a potentially short-term-oriented behavior driver, FOMO is perceived as inconsistent with green crypto coins. Therefore, it is likely that investing in green cryptos is inherently perceived by individuals as either a long-term or a socially oriented investment strategy, as it aligns with the concept of long-term value creation and prioritizes sustainability and long-term impact over short-term gains. Accordingly, using FOMO stimuli in influencer marketing may reduce perceived coherence in sustainable-oriented products as individuals may expect these products (i.e., green crypto) to be positioned in terms of future long-term wealth and contribution to sustainability. These results align with previous scholars demonstrating the critical role of using communication strategies that foster message congruence in influencer marketing (see Han & Balabanis, 2024), and add to recent advances in the literature calling influencers to use different message tactics when communicating about sustainable or socially desirable behavior (Ballestar et al., 2022). Second, FOMO enhances consumers' emotional value perceptions when engaging in regular crypto investments, while a non-FOMO appeal leads to stronger emotional value for the green coin. In other words, in situations where FOMO is present, individuals may assign a higher emotional value to a regular crypto, since there is congruence between the communication strategy and the nature of the crypto. On the other hand, for more sustainable options, the absence of FOMO drives consumers to assign higher emotional characteristics to the product since they may perceive a higher level of alignment between the nature of the message and the green crypto. The results of this study align with existing literature that finds value perceptions, and specifically the emotional value dimensions, as an essential driver of purchase behavior (see González et al., 2021) and as a significant driver in financial decision-making (Heeb et al., 2023). It also adds to the literature stream on consumer rejection of green products (Acuti et al., 2022), as it shows that incongruent messages encouraging sustainable behaviors can backfire by enhancing biases in product perception through reduced emotional value perceptions. This is in line with previous findings showing that sometimes, consumers seem to enjoy green products less than their conventional counterparts (Herédia-Colaço & Coelho do Vale, 2018). Nevertheless, and contrary to our expectations, the social value dimension was found to be nonsignificant.

Fourth, in the discrete choice experiment, we outline participants' utility perceptions concerning various attributes within the crypto investment landscape. Notably, participants showed high utility for non-FOMO and green crypto coins, indicating a recognizable appreciation for investments that align with sustainable and environmentally conscious practices in the absence of FOMO. Furthermore, we uncover the pivotal role that robust governance frameworks and supportive regulations can play as influential levers in fostering and incentivizing sustainable crypto investments. Thus,

the findings provide a practical framework for understanding and advocating the integration of sustainability and regulatory incentives in shaping investor behavior within the crypto-investing context, while underlining the relevance of the FOMO appeal effect in a more complex and realistic environment.

Finally, we provide a deeper understanding of the neurobiological processes involved in FOMO appeals. We find FOMO appeals trigger deeper cognitive processing, which fosters investments, yet only up to a certain point. When consumers overthink FOMO and cognitive loading increases, the effect on investment intention reverses, which is in line with recent advances that triggering thought processes can mitigate FOMO effects (Friederich et al., 2024). Furthermore, our results indicate a higher intersubject correlation for the FOMO appeal in combination with a normal crypto, which provides further evidence for the proposed relationships. The study, therefore, provides first cues, from a neuroscience perspective, of the FOMO appeals effect on consumers' investment behavior, advancing recent literature on externally evoked FOMO appeals in the consumption (Good & Hyman, 2021) and crypto context (see Friederich et al., 2024).

5.2 | Managerial contributions

The findings also offer practical implications. First, our study reveals that FOMO appeals in social network postings do not foster sustainable investment behavior and might deter investors from engaging. This finding is particularly interesting for digital influencers and social media accounts aiming to foster sustainable investments. Given that they typically profit from the increased effectiveness of their product endorsements, they should focus on non-FOMO appeals when promoting green investment opportunities.

Second, as for FinTech's and financial influencers, digital content should leverage the differences in investment intentions between regular and sustainable cryptos based on FOMO and non-FOMO appeals. This suggests the importance of segmenting the market based on consumers' psychological drivers, such as FOMO, and their preferences for sustainable products. Thus, tailored marketing strategies can be developed to target different segments of consumers. For regular cryptos, emphasizing FOMO-related messages or experiences that tap into consumers' desire to be part of a trend or movement can be effective. On the other hand, for sustainable cryptos, highlighting non-FOMO appeals such as environmental benefits, social responsibility, or ethical considerations can enhance investment intentions.

Third, message congruence confirms its pivotal role in influencer marketing, especially in promoting sustainable crypto investments. The study underscores the importance of aligning influencer and social media content with the values and objectives of sustainable investments. Managers and marketers in FinTech and crypto markets should ensure that influencer content aligns with the values and objectives of sustainable crypto investments. In sustainable investment and decision-making, where individuals infer that being sustainable inherently requires the adoption of a long-term

perspective, content should not rely on typical FOMO appeals such as “now or never,” “don't miss out,” or “you in?” that foster feelings of short-termism. Additionally, collaboration with financial influencers perceived as credible, oriented to sustainability, and not opportunistic can reinforce message congruence. Besides message congruence, our study further underscores the significance of emotional value perceptions in influencing sustainable investment behavior. Managers and influencers should focus on evoking emotions that resonate with audiences, fostering a sense of purpose, belonging, and personal fulfillment through sustainable investments. Therefore, collaborating with influencers who can effectively communicate the emotional benefits of supporting eco-friendly cryptos is crucial. These findings also provide insights for policymakers, who could play a relevant role in disseminating these findings to digital influencers. Policymakers and governmental agencies involved in online social media communications should aim to advertise the risks associated with financial decision-making driven by FOMO communications and educate consumers on understanding cryptos and making more sustainable choices by emphasizing the need for adopting a long-term perspective in financial investments. Thus, policymakers can support educational initiatives to increase awareness and understanding among consumers about the differences between regular and sustainable cryptos. This can include promoting financial literacy related to crypto investments, highlighting the potential risks and benefits, and encouraging responsible investment practices. Given the results of the discrete choice experiment, we also highlight the importance of governance and regulatory issues in promoting sustainable crypto investments. Our results reveal the significant impact of governance and regulatory factors on participants' utility perceptions, which is potentially important for promoting sustainable crypto coin investments. Managers and policymakers can use this insight to develop strategies to bolster governance and regulatory support for green cryptos. In conclusion, these findings offer actionable advice for influencers, managers, and policymakers involved in influencer marketing and promoting sustainable crypto investments. Advising against FOMO appeals, emphasizing message congruence and emotional value, and leveraging governance and regulatory support can collectively pave the way for a more sustainable and ethically responsible investment landscape within the crypto sphere. Given the growing popularity of cryptos, policymakers may need to consider regulations that promote transparency, consumer protection, and sustainability in the crypto market. This can involve standards for disclosures related to the environmental and social impacts of crypto transactions, guidelines for advertising practices, and measures to prevent misleading or deceptive marketing tactics that exploit FOMO.

5.3 | Limitations and directions for future research

Some limitations of this study suggest topics for future investigations. First and foremost, future studies are highly encouraged to measure actual consumer investment decisions, as we are either measuring intentions to invest or hypothetical choices. Designs similar to

Friederich et al. (2024) might help in getting a better understanding of the (non-) existence of the intention behavior gap in such a context. Second, the study employed Instagram postings with FOMO appeals. We have not mentioned specific influencers posting such messages. Therefore, in an attempt to foster green crypto coin investment, future research could manipulate the Instagram influencer itself. Previous research showed the importance of such personalities' potential to convey credibility (see Belanche et al., 2021). When focusing on both the influencer and the posting, the effectiveness of such potential hinges on the intersection of credibility, congruence, parasocial relationships, similarity, and opinion leadership (Han & Balabanis, 2024), and thus potential mediators that can be explored in such context. Third, future research should consider individual differences in susceptibility to FOMO appeals and psychological factors impacting sustainable investment decisions. Personal attitudes, risk perceptions, financial literacy, and other psychological variables could influence the effectiveness of influencer marketing for sustainable choices. More insights on potential moderators of our observed effects would enhance the theoretical understanding of our findings. Fourth, in terms of providing more practical guidance on encouraging more sustainable behavior, future research could enlarge the discrete choice experiment design. Future studies could increase the number of FOMO and crypto coin levels or include other relevant attributes, such as the social media influencer source that potentially provides different utility levels to consumers (e.g., Reddit or TikTok). Finally, we highly encourage more research on the neurobiological correlates of FOMO and FOMO appeals to further deepen the understanding of this potentially harmful phenomenon. FOMO typically enhances consumers' impulsivity, decreases their sense of long-term consequences, and increases their willingness to take risks. Understanding these aspects can help in developing effective counter strategies.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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