Cognitive Bias Dynamics in Simulated Trading: Evidence from a Qualitative Experiment

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Abstract

Through a thematic analysis, we analyze the evolution of cognitive biases among eight participants (students) during a three-day trading simulation in a market that was perceived as unfavorable. The biases studied include overconfidence, representativeness, anchoring, herd behavior, availability and prospect theory. Prospect Theory, particularly through loss aversion, is strongly present and dominates the experience of most participants. It is perceived as 'difficult' even with virtual money. Some manage loss aversion with strict stop losses, while others, when confronted with losses, may take more risks in order to try to 'recover'. Gains generate moderate satisfaction rather than euphoria. Virtual money seems to reduce the emotions connected with gains and losses for some participants. Availability Bias is also widespread. The participants focus on easily accessible information such as graphs, well-known company names, basic news and widely used indicators (fundamental analysis is often rejected). Anchoring Bias is variable (some participants use specific limits as reference points). Representativeness bias is generally stable throughout the experiment. It involves using familiarity with companies as a decision-making criterion, or applying principles perceived as effective, such as using well-known technical indicators. Overconfidence varies considerably from one participant to another, influenced by previous experience and results achieved. It can be very low at the beginning, grow with confirmed intuition, or decrease in response to an unfavorable market. In the context of the study, herd behavior corresponds to a desire to find comfort inside the group in order to overcome a feeling of isolation, rather than a desire to copy behavior.

Keywords: Behavioral Finance, Loss Aversion, Overconfidence, Availability Bias, Representativeness Bias, Anchoring Bias, Herd Behavior, Qualitative Research.

1. Introduction

Decision-making in stock markets, with their abundance of information (Allain, 2013 ; Goodell et al., 2023) is a complex process. Traditional economic models assume that agents are rational, considering investors to be perfectly informed decision-makers

seeking to maximize their utility in a rational way (Benjana & Yamani, 2022). However, behavioral finance has largely challenged this perspective (Nwosu & Ilori, 2024). Numerous empirical studies have shown that financial decisions are frequently influenced by psychological factors, including cognitive and behavioral biases (Lo et al., 2005). Among the most common biases in stock market trading, we consider overconfidence, representativeness, anchoring, herd behavior, availability bias and the processes described by prospect theory (particularly loss aversion). These biases can alter risk perception, asset valuation and response to market signals. The influence of these biases is widely discussed in the literature (Singh et al., 2024) but understanding their dynamics and evolution during a trading period is not a common topic. Our study explores this dynamic dimension by examining the behavior and perceptions of eight participants engaged in a three-day stock market simulation. A simulation environment provides a framework for observing psychological reactions under conditions that, while not involving real money, replicate the informational and time constraints of real trading. The specific context of this simulation, with a market perceived as difficult by participants, provides a particularly relevant field for studying how individuals react and manage their biases in situations of uncertainty (Bouattour & Martinez, 2019 ; Finet et al, 2025)

2. State of the Art Concerning Selected Biases

2.1. Overconfidence Bias

Overconfidence bias reflects the tendency of individuals to overestimate their knowledge, judgement, or control over random events. This bias has been widely studied in behavioral finance, particularly in the context of trading. Barber and Odean (1999) demonstrate that overconfident investors trade more, generating lower returns than more conservative investors. This excessive confidence leads them to ignore warnings and overestimate the accuracy of their predictions. This bias is reinforced by specific situations. For example, the “beginner's luck” effect can shape an exaggerated perception of competence after initial gains (Merkle, 2017; Gao et al., 2021). Abreu and Mendes (2012) point out that decisions based on rumors or informal sources promote overconfidence. Kim et al. (2021) show that ambiguous financial information reinforces this tendency, particularly in volatile environments. The level of overconfidence also varies according to investor profiles. Menkhoff et al. (2013) find that financial advisors exhibit greater overconfidence than institutional asset managers, which can lead to even riskier behavior when they advise customers.

2.2. Anchoring Bias

Anchoring bias describes the propensity to rely excessively on an initial reference value when taking a decision, even if that value is arbitrary or obsolete (Tversky & Kahneman, 1974). In a stock market context, this bias is particularly evident in the focus on the purchase price of an asset, which leads investors to wait for a ‘rebound’ before selling, even when the outlook is unfavorable (Furnham & Boo, 2011). Anchoring can be explained by selective attention : investors are reluctant to update their judgements based on new

information. Liang et al. (2017) note that financial decisions are often guided by mental patterns that are resistant to rational updates. Amokrane and Ouaret (2021) confirm that this bias could affect both professionals and individuals. Rani et al. (2024) observe that anchoring increases risk tolerance, as investors find it difficult to adjust their expectations after a loss. This can be exacerbated in volatile markets, where initial reference points quickly lose their relevance.

2.3. Availability Bias

Availability bias, first identified by Tversky and Kahneman (1973), is based on how easily information comes to mind. The more recent, distinctive or emotional a piece of information is, the more representative of reality it is considered to be, even if it is statistically insignificant. This bias is particularly problematic in finance, as it leads to overestimating the importance of recent or highly publicized events, to the expense of in-depth analysis. Aren and Hamamci (2021) distinguish between two mechanisms: availability related to the perceived frequency of an event, and availability related to the brightness of the associated mental image. Thus, a recent crisis may cause investors to overestimate the risk of a market downturn, even in the absence of negative fundamental indicators. Some studies (Moradi et al., 2013) link this bias to personality traits: extroverted or emotionally unstable individuals are thought to be more vulnerable to this bias. Zahera and Bansal (2018) observe that availability bias interacts with other biases, such as overconfidence or the recency effect, amplifying its effects. Javed et al. (2017) highlight a link between availability and perceived performance, suggesting that investors influenced by striking memories tend to believe they are performing better than they actually are. Other studies (Bakar & Yi, 2016; Sadi et al., 2011) confirm that this bias significantly influences buying and selling decisions.

2.4. Representativeness Bias

Representativeness bias is the error of judging the probability of an event based on its similarity to a perceived trend, often at the expense of rigorous probabilistic analysis. Ritika and Kishor (2022) show that this bias leads to systematic forecasting errors, particularly among novice investors. Ates et al. (2016) note that the level of financial education plays a moderating role: people with little education tend to confuse chance with a stable pattern. Irshad et al. (2016) show that the representativeness effect encourages decisions based on emotions or intuition rather than fundamental data.

2.5. Herd Behavior

Herd behavior refers to the tendency of individuals to follow the decisions of others, often to the expense of their own judgement. In financial markets, this results in mimetic behavior in investment decisions, particularly during periods of uncertainty. Fear of missing out on an opportunity and the need for social belonging are major contributing factors (Li et al., 2023). Galariotis et al. (2016) reveal that herd behavior is particularly prevalent in European markets, with the exception of Germany. Shah et al. (2017) point out that this behavior is more common in large companies and during market upturns. Kumar et al. (2021) observe that collective panic, typical of bear markets, also

accentuates herd behavior. Vo and Phan (2017) confirm that this behavior intensifies in times of crisis, such as after the 2008 financial crisis in Vietnam. This leads to speculative bubbles, increased volatility and collective irrational decisions.

2.6. Prospect Theory

Prospect theory, developed by Kahneman and Tversky (1973), is one of the foundations of behavioral finance. It provides a more realistic view of human behavior in the face of risk, incorporating emotions and subjective perceptions into decision-making.

Its major contributions include:

- Loss aversion: losses generate psychological pain more intense than the pleasure derived from an equivalent gain. This explains the reluctance to sell assets at a loss (Coricelli et al., 2007; Van Dijk & Zeelenberg, 2005), a behavior reinforced by feelings of regret (Deuskar et al., 2017; 2021).
- Framing: the presentation of information influences decision-making. For example, an unrealized loss causes less anxiety than a recorded loss (Chong & Druckman, 2007).
- Probability weighting: individuals tend to overestimate low probabilities and underestimate high ones. This phenomenon is particularly pronounced in speculative trading, where the possibility of a large gain prevails over the actual probability (Fenton-O'Creevy et al., 2010; Gupta et al., 2019).
- The reference point: gains and losses are evaluated relative to a psychological benchmark (often the purchase price) rather than in absolute terms. Koszegi and Rabin (2006) and Brettschneider et al. (2025) show that this strongly influences decisions to sell and hold positions, even in the absence of rational economic grounds.

3. General Methodological Perspective

Our article uses a qualitative and inductive methodological perspective, a method still relatively uncommon in finance, which has traditionally favored quantitative and deductive techniques (Hoffmann et al., 2015; Della Vedova et al., 2023; Oehler et al., 2018). Given the nature of traders' emotions, qualitative approach provides valuable insights. Quantitative methodologies often struggle to catch the detailed nuances of decision-making and the underlying emotional dimensions. In contrast, qualitative methods result in analyzing unexpected influences, difficult to access through quantitative tools. This immersive qualitative perspective thus lays a foundation for theory development based on lived experiences, allowing the assessment of context-specific behavioral mechanisms.

In qualitative research, the aim is not to statistically generalize findings from a sample to a larger population but to achieve a deep understanding of a phenomenon within a specific context. It involves collecting data from a small, purposively selected sample, chosen for its relevance to the research question (Firestone, 1993; Maxwell, 1992).

For this study, an experimental protocol involving three consecutive days of simulated trading was conducted in January 2025 with a group of eight students. Following this phase, individual semi-structured interviews were carried out by a single researcher to ensure consistency: the researcher had no academic ties to the participants, which encouraged open responses. The immediate sequencing of the interviews after the trading sessions also helped establish a degree of familiarity, enriching the conversations.

3.1. Data Analysis

In terms of data analysis, the narrative approach (as outlined in Creswell and Poth's (2017) five qualitative tools) was selected, as other approaches (case studies, ethnography, phenomenology, and grounded theory) were not aligned with the article's objectives. Narrative research focuses on affective and experiential dimensions, often involving the reconstruction of participants' stories through the thematic identification of key elements. This analytical process includes memo-writing, contextual description and interpretive engagement with personal narratives.

The semi-structured interviews were guided by a framework consisting of several sets of open-ended questions, each addressing specific themes related to behavioral patterns. This interview guide allowed for flexible navigation of topics and facilitated the dynamic adaptation of the interview based on participant responses. Such flexibility is essential in qualitative research for an in-depth exploration, maintaining alignment with the research design, and supporting responsiveness to unexpected insights that may emerge during the interaction. In this context, the guide functioned as a flexible structure rather than a restrictive protocol (Whiting, 2008).

For the analysis of the interview data, a thematic analysis was employed. This method is well-suited for participatory research and enables the identification of both commonalities and differences across the dataset, while also allowing for the emergence of unanticipated insights (Vaismoradi et al., 2013; Nowell et al., 2017). The analysis followed the six-phase procedure proposed by Braun and Clarke (2006), Byrne D. (2022), Bingham, A. J. (2023), ranging from data familiarization to the production of the final report, thereby addressing common critiques in qualitative research (Özden, 2024). Each interview was summarized by dominant themes, representative codes, and illustrative statements. Themes to be analyzed are biases (Dependence on the Declining Stock Market) and impact on decision-making.

All interviews were audio-recorded with participants' consent, fully transcribed (see Table 2 for interview data), and analyzed by the three authors of this study. The use of artificial intelligence was deliberately excluded, as current technologies are not yet capable of fully grasping the complexities involved in emotional-related reasoning (Finet et al., 2025).

3.2. Experimental Design

Our initial investigations into how emotions affect decision-making began in 2019 (Finet et al., 2022). The challenges brought by the COVID-19 pandemic and subsequent

lockdowns, which made empirical experimentation especially difficult, led us to refine and adapt our experimental protocols (Finet & Laznicka, 2025).

Participants traded equities individually through the ABC Bourse platform, focusing on stocks listed on the CAC40, France's main stock market index. Each participant was given a virtual portfolio of 100,000 euros. We chose the CAC40 assuming its constituent companies would be relatively familiar to the participants. There were no limits on trading volume. The experiment lasted three consecutive days (January 27–29, 2025), divided into twelve one-hour trading sessions. To simulate the pressure found in real-world markets, participants could access real-time data showing their peers' portfolio performance.

We paid attention to the composition of the initial portfolio. Previous studies suggest that an initial portfolio fully invested in equities can amplify risk-taking behaviors, while an initial cash allocation encourages more conservative behaviors, regardless of market conditions (Finet et al., 2021; Finet et al., 2025).

The experiment was conducted at the University of Mons (Belgium) and involved students enrolled in Management Science programs. We focused on recruiting participants based on intrinsic motivations rather than financial incentives, and we imposed no fixed deadline for applications to encourage voluntary participation. The final sample consisted of eight participants (seven men and one woman), a size determined by both budgetary constraints and the labor-intensive nature of qualitative data analysis. Participants were financially compensated for 24 hours of trading activity over the three-day experiment. [1]The predominance of male participants is consistent with what it is documented in financial literature and is often linked to a greater male propensity for risk-taking or gambling behaviors (Barber & Odean, 2001; Cueva & Rustichini, 2015; Bashir et al., 2013).

3.3. Participant Profile and Market Context

Although experimental finance sometimes faces criticism for relying on student samples (who could differ psychologically from professional traders), this choice remains widespread due to advantages in recruitment, cost-effectiveness, and time efficiency (Etchart-Vincent, 2006; Kirchler, 2009; Hanke et al., 2010; Bouattour & Martinez, 2019). To address concerns about limited real-market experience, we integrated several considerations: first, participants completed academic courses in finance, providing them with some basic knowledge. Second, empirical research demonstrates that students can exhibit behavioral patterns similar to professionals (Porter & Smith, 2003; Fréchette, 2011), particularly in tasks like option pricing (Abbink & Rockenbach, 2006). Consequently, the use of student samples is both common and accepted within

[1] All participants provided written informed consent prior to participating in the study. Consent was obtained using printed documents, in accordance with ethical guidelines for research involving human participants. Although the experiment was conducted on a student population (all students were over 18 years of age), no manipulation was carried out: in practical terms, they remained seated in front of a computer for several hours without any physical interaction with the organizers. Finally, no intrusive technology was used, and no neurophysiological measurement tools were used. For all these reasons, how the experiment was designed does not fall within the scope of the Helsinki guidelines. Helsinki guidelines concern medical research involving human participants, but in our case, this is not medical research but simply using written documents.

experimental finance and behavioral economics (Rossignol et al., 2007; She et al., 2017; Ackert et al., 2005; Biais et al., 2005; Bruguier et al., 2010; Widyarini, 2017). To reinforce participant engagement, a *non-monetary* incentive (a 200 euros-value hotel stay awarded to the top-performing portfolio was offered), in line with findings regarding the motivational impact of non-cash rewards in experimental settings (Etchart-Vincent, 2006; Gabbi & Zanotti, 2019). Thus, participant motivation combined direct compensation for time spent and a performance-based prize.

The experiment took place in a market with a slightly negative trend in the CAC40 index, as detailed in Table 1. Comparative data on the Dow Jones Industrial Average (DJ30), NASDAQ 100, and TOPIX are also presented to provide broader contextualization. While the CAC40 faced only marginal losses, participants exhibited notable concern about the decline in their portfolio values, even when their losses were consistent with overall market trends. This negative perception may have fostered the development of specific biases and behaviors (Xu et al., 2022; Sokolowska & Makowiec, 2017).

Significant informational events shaped the market environment during the experiment. On the first day, news coverage was dominated by developments concerning DeepSeek, a Chinese firm emerging as a rival to American companies in the Artificial Intelligence sector. The second day continued to be influenced by news related to DeepSeek and its potential implications for U.S.-based AI firms. On the third day, investor sentiment was affected by LVMH's annual earnings report, which underperformed relative to expectations. Finally, the U.S. Federal Reserve's announcement on January 29th (interest rates will remain unchanged) was widely anticipated.

Table 1. Evolution of CAC40, DJ30, NASDAQ 100, and TOPIX over the Experimental Period

Index	01/27/2025	01/28/2025	01/29/2025	Total Change
CAC40	-0.0003	-0.00012	-0.0032	-0.0036
DJ30	0.0065	0.0031	-0.0031	0.0065
NASDAQ 100	-0.0297	0.0159	-0.0024	-0.0162
TOPIX	0.0026	-0.0004	0.0068	0.009

3.4. Interview Structure and Emotions Analyzed

Following the three-day trading sessions, semi-structured interviews were conducted using a three-phase interview guide. The first phase consisted of general, introductory questions about the participants and their interest in trading. However, given the relations already established during the experiment, this phase often proved redundant, allowing the discussion to quickly pivot toward the study's core focus. The second phase explored the development of decision-making biases during the trading sessions.

The interview guide was structured around biases:

- Availability Bias: Assessed via four questions to determine whether participants relied predominantly on recent or easily retrievable information (Sadi et al., 2011).

- Representativeness Bias: Explored using three questions to evaluate reliance on past experiences for decision-making (Rai, 2024).
- Overconfidence: Evaluated through four questions measuring participants' perceived abilities in predicting market trends (Wang, 2023).
- Anchoring Bias: Analyzed through three questions to examine dependence on initial reference points (Sharma & Firoz, 2020).
- Herd Behavior: Measured using three questions assessing conformity with peer actions (Utari et al., 2024).
- Prospect Theory: Via three questions regarding emotional and behavioral responses to gains and losses (Summers & Duxbury, 2012).

The final phase of the interview allowed participants to share additional reflections or raise topics not previously addressed.

3.5. Summary of Key Experimental Elements

In summary, this experimental study was characterized by the following key elements, which form the basis of our analysis:

- A three-day trading simulation within the French stock market context.
- A sample composed predominantly of male university students.
- A market environment perceived as generally declining.
- A performance-based reward offered to the participant with the highest portfolio return at the end of the experiment.

4. Results

4.1. Procedure Followed for Producing Results

The process involved several key steps that were central to the thematic analysis:

- Becoming familiar with the data: Repeatedly reading the transcripts of each participant's interviews provided an overall understanding of the discourse and an opportunity to begin to note initial ideas about the biases identified in the context of this article.
- Generation of initial codes: The interviews were then coded line by line, assigning codes to specific manifestations of bias (e.g., ‘reluctance to sell at a loss,’ ‘trust based on intuition,’ ‘anchoring on fixed limits,’ ‘use of familiar graphs’). This step was used to break down the discourse into units of meaning relevant to the analysis. Evolution was specifically investigated by coding the manifestations of biases and relating them to the days of the simulation.
- Research themes: The relevant codes were then regrouped to create themes representing the biases analyzed. This phase involved aggregating and organizing

the codes to identify recurring central themes across the interviews and their temporal dynamics over the three days.

- Themes revision: The themes were redefined if necessary, and codes were reassigned to ensure they matched the patterns present in the data and the trends. The relationship between biases and their interaction was also reviewed during this step.
- Theme names: Each theme was defined and illustrated using representative statements drawn from each code and theme, linking the analysis to participants' statements. The evolution of each bias was also described.
- Final report produced participant by participant: Finally, the analysis was written, explaining the dynamics of each bias as highlighted by the thematic analysis, illustrating key points with statements.

4.2. Results

Table 2. Statistical Summary of Semi-Structured Interviews

Student	**Duration**	**Number of Words**	**Number of Pages**
I.1.	42 minutes	4466	10
I.2.	42 minutes	6827	12
I.3.	59 minutes	7922	14
I.4.	43 minutes	7492	12
I.5.	42 minutes	5949	12
I.6.	36 minutes	6124	11
I.7.	36 minutes	5946	11
I.8.	33 minutes	5577	10
Mean	42 minutes	6288	11,5
Maximum	59 minutes	7922	14
Minimum	33 minutes	4466	10
Standard Deviation	8	1102	1,3

Student I.1.			
Theme	Codes	Statements	Descriptive Analysis
Overconfidence	Initial confidence based on personal experience	I'm very interested in trading on a personal level, and the whole environment and atmosphere around it. I'd really like to do it as a career in the future, why not? So it was	The participant has experience in cryptocurrency trading, which gives them a degree of confidence. He is motivated by a desire to further develop this experience and turn it into a job.

		really for the experience, to gain experience, and to gain even more experience, and that's it, quite simply, more experience, that's what interests me a lot.‘ ’What I did a few years ago was cryptocurrencies.	
	Confidence challenged by losses (Day 2 - Day 3)	“yesterday was significant in the sense that the stock I had fell sharply”	The participant notes that his mood “depended on the stock market”. A significant loss on the second day affected his emotional state, which may indicate a slight decline in overconfidence.
		Basically, our mood depended on the stock market and the shares we had bought. If they went up, we were happy; if they went down, we were a bit more cautious. But personally, yes, Wednesday, or yesterday as it turned out, was significant in the sense that the shares I had bought went down significantly.	
Representativeness bias	Applying cryptocurrencies experience to shares	‘What I did a few years ago was cryptocurrencies. Because trading on the stock market and all that is a bit longer, a bit slower, a bit less volatile.’	The participant, having traded cryptocurrencies, is projecting this experience on the stock market, even though he recognizes a difference in terms of ‘speed’. He is using his knowledge of cryptocurrencies as a model.
	Searching for a ‘clear path’	“I expected there to be a bit more of a clear path. Like, if the action does this, then you have to do that, based on what we saw in class. But the teacher told us it's not that simple.” 'I was a bit lost because the market was a bit uncertain.'	The participant expresses a desire for a clear strategy or a clear path for trading, indicating a search for a reliable and reproducible model, as if market rules should be simply predictable.
Anchoring Bias	Not Applicable	Not Applicable	No evidence for Anchoring Bias
Herd Behavior	Not Applicable	Not Applicable	The interview does not provide any evidence that the

			participant followed the decisions or opinions of others. The focus is on his own experience and reactions to stock market trends.
Availability Bias	Use of graphical information and prices	'Our behaviour depended on the stock market, on the actions we had taken. If they went up, we were happy; if they went down, we were a little more cautious.'	The immediate availability of stock market prices and fluctuations is the main source of information on which the participant bases his reactions and decisions.
	Reflection on the lack of available information	"I expected there to be a bit more of a clear path. Like, if the action does this, then you have to do that, based on what we saw in class. But the teacher told us it's not that simple."	The participant realized that he would have liked more 'information' to better guide his actions, suggesting that the information available (stock market prices alone) was not sufficient to give him confidence in his decisions.
Prospect Theory	High emotional reactivity to gains and losses	"Our mood depended on the stock market and the shares we had bought. If they went up, we were happy; if they went down, we were a bit more cautious." 'Personally, yes, on Wednesday, or yesterday as it turned out, it was significant in the sense that the shares I had bought went down significantly.	Faced with losses in an uncertain market, the participant wants greater certainty. The participant clearly expresses the emotional impact of market fluctuations: "if they went up, we were happy; if they went down, we were a bit more cautious." The 'pain' of loss is explicitly mentioned as a "significant" factor.
	Significant impact of losses	'The stock I had dropped significantly'	A significant loss is the most striking and memorable moment of the experience for the participant.
		"But personally, yes, Wednesday, or yesterday as it turned out, was significant in the sense that the stock I had bought fell significantly".	
Student I.2.			
Theme	Codes	Statements	Descritive Analysis
Overconfidence (Absence of)	Low self-assessment of skills	The only knowledge I have is what we learned in class. So, it's more about the structure of	The participant repeatedly expresses low confidence in his trading skills.

		financial markets than trading itself.	
	Humility towards the unpredictability of the market	“I think there's a lot of aleatory in it.” 'Yes, very unpredictable. '	The participant highlights the unpredictability and element of chance in the market, even for professionals, which reduces the likelihood of overconfidence.
Representativeness bias	Learning from past experience	‘I think that trying to be calmer is because my previous experience was that I was impulsive. I finished last. In one day, I lost 6,000 euros. So I said to myself, “This proves that maybe it's not the best solution.”’	The participant learns lessons from a previous trading experience where impulsiveness led to a significant loss. This experience is used as a ‘sample’ to adjust his current behavior towards a more cautious approach.
Anchoring Bias **:** this bias appears to be very weak or not present. The participant is not ‘anchored’ to an initial reference point.	Little influence of initial purchase price	‘No, it's more about the gain or loss than the price I paid for it.’ ‘OK, so I was basing my decision more on “how much I gain, how much I lose” rather than on the initial price of the share.’	The participant explicitly states that he will not base his selling decisions on the purchase price of the share, but rather on the current gain or loss.
Herd Behavior	Resistance to copy risky behaviour	‘I'm not going to mess everything up because others have messed it up. That means that for the past two and a half days, I'm not going to do anything, I'm going to do everything again now. I thought consistency was important, staying consistent.’	The participant declines to succumb to pressure to take ‘big risks’ or radically change his strategy even if others around him do so, valuing consistent behavior.
	Following the general market trend	“I was trying to replicate the trend. I was trying to follow the market trend.”	Although reluctant to imitate individuals, the participant states that he tries to ‘follow the market trend’ overall, which can be interpreted as a kind of herd behavior. The participant does not appear to be following indiscriminately but rather adapting his strategy to the overall perceived market direction.
Availability Bias	Influence of media coverage and familiarity with the company	Because ultimately, when I look at most of them, not all of them, but most of the companies I chose, I was familiar with them. And especially the ones	The participant recognises an unconscious attraction to companies they are familiar with or that receive more media coverage. The ease of access to information about these

		I didn't know, I noticed afterwards that I was less affected by them. So I think that yes, unconsciously, I was attracted to them.“ 'Ah, that's good, there's more information. It seems more obvious, I think.” 'Okay, yes, it's more that when you're more exposed, you tend to focus your attention on that.'	companies influences his attention and choices.
	Impact of information accessibility on information search depth	“It depended on the type of information.” 'It depended on the information, whether it was already comprehensive enough in the article, and I thought, yes, they took all opinions into account.'	: The nature of the information available (its completeness and clarity) determines whether the participant will look for additional information or not.
Prospect Theory	Loss aversion reduced by the selected strategy	“You could say it's more boring. Let's say, oh well, I was hoping it would go up and it went down. I was a little disappointed, but not too much, because the impact isn't that big. It's not a big deal.”	The participant expresses disappointment (“boring”, “disappointed”) at the losses, but the emotional impact is minimized by the small size of the amounts invested and the diversification of the portfolio. Loss aversion is present but mitigated by his strategy.
	Moderate satisfaction with gains	‘More satisfied than happy.’ ‘Satisfied because I knew my variations weren't going to be huge.’	The gains generate ‘satisfaction’ rather than euphoria, because they validate his cautious strategy rather than significant risk-taking.
	Limits for gains and losses	“I tried, at least for the gains, to take them if I had more than 50.” ‘Yes, I have more or less 50. Even in losses, generally.’ “Not systematically. But I tried to say to myself, from that moment on, it doesn't go any further. 'It depended on the trend.”	The participant sets a limit of plus or minus 50 euros for resale, which serves as a reference point for his decisions. However, this limit is not rigid and is adjusted according to perceived market trends.
Student I.3.			
Theme	Codes	Statements	Descriptive Analysis
Overconfidence	Initial confidence based on experience	“My first motivation was that I had already traded several assets, including	The participant, having already traded in a variety of assets (crypto, indices), arrives with a certain level of confidence in

		cryptocurrencies and indices. I am very risky. I have a propensity for risk."	their abilities, even if stocks are 'a bit new' to them. They consider themselves 'very risky' with a 'risk appetite.'
	Overconfidence persists despite losses	'I said, OK, I know that in the long run, we can get back on track. We're always able to get back on track.' I don't say to myself, 'Oh my God, I've lost, I've lost.'	Despite an unfavorable market and losses, the participant does not fundamentally question his strategy or ability to recover, but rather the length of time involved or luck. The participant remains confident in his ability to manage risk and recover.
	Overestimation of market knowledge	'I think the stock market is very unpredictable.' 'It's difficult, but you can always make money in the market.'	The participant demonstrates some knowledge of market mechanisms, although he recognizes the difficulty involved. He positions himself as having an understanding that, although nuanced, could result in overconfidence.
Representativeness Bias	Anchorage in past trading experiences	"My first motivation was that I had already traded in several assets, including cryptocurrencies and indices." 'I rarely trade in stocks. It's a bit new to me.'	The participant relies on his past trading experience to approach the stock market. He projects behaviors and expectations based on these previous experiences.
	Applying a scalping trading strategy	"I preferred to make many trades, with small gains, but a large number of trades, few losses, and I didn't hold on to my shares." 'I used scalping. A little profit, some losses, few losses. But I didn't hold on to my shares for very long.'	The participant seeks to apply a 'scalping' strategy (rapid transactions) that is commonly used in cryptocurrencies but less effective for stocks.
	Perception of the "right" trading style based on past models	"And I preferred to make a lot of trades, with small gains, but a large number of trades, few losses, and I don't hold onto my shares." 'I've made some significant gains in the past.'	The participant continues to believe in his "scalping" method and considers that if the market had been more favorable, it would have worked. He refers to his past experience where he made significant gains using this method.
Anchoring Bias	Anchoring on entry/exit prices	'So, I just put my stop loss and take profit straight away when I get back. Stop loss is -20. And take profit is +20.' "If it hits 20, I get out. Even if there's a gap, I'm not there. I don't want to keep going."	The participant is setting very specific gain and loss targets ("+20, -20"), indicating a strong reference point dependency for decision-making.

	Strict limits despite the market	'I'm not like people who change their stop loss. Or I'm not like people who set a stop loss but don't follow it.'	The participant maintains their profit-taking and stop-loss limits even when the market does not provide easy opportunities to achieve these targets, which may lead to missed opportunities or losses.
Herd Behavior	Search for validation by the group	'The thing is, sometimes when you have a mentor, they say, "Look, I lost too. Let's reassure ourselves and say that even he, who is good, made a mistake."' 'A little, because if the market were to decline, I would say to myself, "We all know each other, we are all in the same situation, we are all doing the same things."	The participant expresses a feeling of comfort when other people lose money. This suggests a search for validation of his own losses and a need to belong to a group that is experiencing the same difficulties.
	Impact of other results	'But then we were working on different assets. So that's also why I think I'm not really comparable to him.	The need to compare is present. It is a kind of herd behaviour where the results of others influence the evaluation of one's own performance.
Availability Bias	Use of easily accessible information	"I collected information and based my decisions on information, news, etc. So I had a stock portfolio, and then I also had a few graphs." 'I'm not convinced by that, but it's the only material that can be used for the short term. Because you can't wait, there's no point in looking at the value of the company behind it, because in the short term, the variations are less rationalized, let's say."	The participant bases their decisions on "easily accessible" information or "news" rather than on extensive fundamental analysis.
	Reliance on popular/well-known tools	So, I had Boursorama. And then I also had a few graphs. So, sometimes I used ABC Bourse, and often Investing as well."	The use of platforms such as Boursorama and Investing, or technical analysis tools, is tied to their popularity and therefore their availability in the participant's mind.
Prospect Theory	Strong aversion to loss	"A loss is a loss. So, it's very boring. Very difficult. It hurts a little,	The participant expresses a clear aversion to loss, trying to minimize losses through very

		even if it's not my money." 'It hurts a little, it's very boring." 'It's just that I'm not the type to hold on to my losses. I have a stop loss, I cut straight away."	strict stop losses and refusing to hold losing positions. They describe losses as "really boring".
	Pleasure of frequent small gains	"I preferred to make a lot of trades, with small gains, but a large number of trades, few losses, and I don't hold onto my shares." 'It's a gain. Even if it's small, it's a gain. It's always nice. It makes you feel like you're doing something right.'	Participants get satisfaction from frequent small gains, which is consistent with prospect theory, whereby regular gains, even if small, are preferred to potentially larger but less certain gains.
	Difficulty in recognising losses	It hurts a little, even if it's not my money.' 'I prefer it to be automatic, because if I have to say it out loud, ah, I cut myself off, I'm like those people who, sometimes, ah, I don't want to lose."	: The participant expresses difficulty in accepting a loss "verbally", even though he has set up automatic stop losses.
Student I.4.			
Theme	Codes	Statements	Descriptive Analysis
Overconfidence	Conservative confidence based on specific skills	I believe in my ability to analyse data and manage risk." 'Because I was able to assess the value of a company, whether it was overvalued or undervalued." 'Whereas if I had based my decision on all my knowledge of the company, I might not have been able to do much with it because I don't have all the knowledge.'	The participant expresses confidence in his analytical and risk management skills, but this confidence is tempered by an awareness of his limitations in terms of fundamental tools.
	Control of indicators and evaluation of decision-making	"I understand the indicators, so I feel confident and can therefore assess my decision-making."	The participant feels confident in his understanding of the indicators, which gives him confidence in his or her ability to evaluate his own decisions.
Representativeness Bias	Learning from past experiences	'I also discovered this with JEWAC's Junior Trader Game. Yes. And I said to myself, if it can help me discover	The participant learned from his past experiences (Junior Trader Game) where he "lost quite a bit", which encouraged him to take a more measured and

		another side of stock market investing, why not?' 'I've become a little less risk-averse. The first time, I lost quite a bit. So now I tell myself that just because I have a propensity for risk doesn't mean I have to lose money." 'I've learned that sometimes you have to be very patient with some trades.	diversified approach in the current simulation. He uses this experience as a representation to adjust his behavior.
	Interpretation of investment principles	"It's more like real estate crowdfunding. And along with that, I'm gradually becoming interested in other investments, let's call them derivatives." 'I've diversified my portfolio.'	The participant applies investment principles he is familiar with (real estate crowdfunding, diversification) to stock market trading, even if the dynamics may be different.
Anchoring Bias	Anchoring on defined loss limits	Almost every day, I lose money. But I knew I could deal with it, so I stopped. I told myself, "I don't want to lose more than 50 euros. I don't want it to go any further than that." So I stopped right away.	The participant chooses an acceptable loss limit and doesn't hesitate to cut his losses as soon as this limit is reached, serving as a fixed reference point.
	Anchor point flexibility for gains	"However, I didn't have any targets for the gains. I was waiting for them to increase." 'And could they increase even more? So, I didn't put a limit on my gains.'	As opposed to losses, the anchor point for gains is more flexible. The participant does not set a strict profit target and prefers to wait, trying to maximize gains without a predefined limit.
Herd Behavior (Absence of)	Independence from other participants	"I knew that the others were very risky. So I didn't copy what they did at all. I followed my own strategy. »	The participant strongly states that he was not influenced by the decisions of other participants and that he followed his own strategy.
	Decision-making based on personal analysis	"I did what I planned to do."	Decision-making is seen as the result of personal analysis and convictions, rather than watching what others do.
Availability Bias	Prefer concise, rapid information	'I was looking more at press articles or news.' "Based on the press, the news, some articles or some websites. I didn't look at financial statements very much." 'It's much easier.'	Participants favor concise, easily accessible information, such as news items or press articles, rather than in-depth financial analyses that require more time and knowledge.

	Rejection of complex fundamental analysis	'If I see a company's balance sheet, I wouldn't know what to do with it. Some people would calculate financial ratios that would indicate whether it is well valued or whatever. We did that quickly in class. But in real life, I wouldn't know how to do it yet.' 'No, it's more about experience.'	The participant declares that he does not use fundamental analysis (balance sheets, financial ratios) because he/she does not have the necessary tools or experience, which encourages him to seek more 'readily available' information.
Prospect Theory	Loss aversion and proactive management	I told myself, I don't want the trade to lose more than 50 euros. I don't want it to go any further. So I cut it straight away." 'I wasn't looking at my losses because I was cutting them straight away. I wasn't thinking, oh, I'm losing 1,000 euros, I have to recover."	The participant demonstrates a strong aversion to loss, quickly cutting losses once a predefined limit is met. He perceives losses as unpleasant but manageable thanks to his self-discipline.
	Unlimited profit targets	'However, I didn't have any targets for earnings. I was waiting for them to increase.' "And could they increase even more? So, I didn't put any limits on my gains."	The participant does not set a limit on gains, showing a preference for pursuing profit.
	Emotional impact of losses despite discipline	'The thing is, I wasn't looking at my losses because I was cutting them straight away. I wasn't thinking, "Oh, I've lost 1,000 euros, I have to win it back". On the other hand, it can be discouraging.'	Even with a discipline of cutting losses, the participant recognizes disappointment from repeated or significant losses, even if they are not 'painful.'
Student I.5.			
Theme	Codes	Statements	Descriptive Analysis
Overconfidence	Initial confidence in theoretical knowledge and learning	'I know that at school we touch on this very briefly in theory, so I thought, why not try it in practice? Just to see how it works. I'd like to know how it's done, in case I ever need to do it for shopping.'	The participant expresses a moderate level of confidence at the beginning, based on the theory learned on the course and the desire to gain practical experience. She does not feel like an expert but is motivated to understand how things work on the stock markets.

	Loss of confidence due to unfavorable market conditions	'I told myself, 'There's nothing you can do now, because it's the last day, and you've seen the stock market, there's going to be no miracle.' You try to find a strategy, we tried in the morning, I don't think it's the only one, we were all discouraged, demotivated, because nothing was moving forward."	Faced with a market that is not moving, the participant feels discouraged, which undermines her confidence in her ability to influence results. Her initial confidence in learning is challenged by the reality of the market.
Representativeness Bias (not very present)	Stereotypical perceptions of professional traders	"There are people who know; it's not because we don't know, we don't have the information. They know what they're doing, and we don't know what we're doing. So we try to copy what they do."	The participant believes that professional traders "know everything" or have access to privileged information, which reinforces the idea that there is a "right" way of doing things, but that this is only available to an exclusive group of people.
Anchoring Bias	Anchorage on the initial forecasts	'For me, the price will always rise again.' "We don't know how long it will take, but we are convinced that the price will return to its level at the time of purchase."	The participant mentions the hope that 'prices will rise again', remaining 'anchored' to the expectation of a return to normal, even if the market remains flat.
	Difficulty in changing strategy	We're trying to find a strategy. We tried this morning, but I don't think it's the only one. We were all discouraged and demotivated because nothing was moving forward. So we came to the conclusion that there's nothing else we could do."	Despite discouragement and the lack of market activity, the participant finds the strategy difficult to change fundamentally, continuing to hope that her initial predictions will become reality.
Herd Behavior	Influence of others' results	It's the second day, so at the end of the day, or at the end of the hour, I need to climb up, you see, it's a bit like that.' 'We've seen that, well, we can't do anything else. It's in the rankings now. Whereas well in advance, when things were moving on the stock market, we were motivating ourselves."	Ranking and comparison with other participants have a significant impact on participant motivation. There is pressure to rise in the rankings.

	Group discouragement	“We were all discouraged and demotivated because nothing was making any progress.”	When the market stops moving, participants feel discouraged, sharing this feeling with others, which indicates a mutual influence of emotions within the group.
Availability Bias	Preference for ‘easy’ information and tools	“I relied a little more on information and technical analysis, which is quite reliable.”	The participant turns to ‘charts’ and ‘technical analysis,’ which she considers more “reliable” and more understandable than other kinds of analysis.
	Influence of well-known and media-covered companies	‘I knew about L'Oréal, I knew about LVMH, I knew about Hermès... These are things I aspire to have in the future with ease.’ ‘What I hear about product tracking, for example, or I know the words they use.’	The participant favours companies that she knows or has “heard of” (L'Oréal, LVMH, Hermès, or those mentioned in class). Easy access to information and familiarity influence her choices.
Prospect Theory	Loss aversion	‘I didn't want to cut at a loss. I don't really like that.’	The participant expresses a strong aversion to “cutting losses”, believing that prices “always come back”. This leads them to hold on to losing positions in an attempt to avoid realizing the loss.
	Recognising powerlessness towards the environment	I felt discouraged when I saw that the stock market had stopped moving.	Market stagnation leads to a form of passive resignation to losses, as no action seems likely to change the current situation.
Student I.6.			
Theme	Codes	Statements	Descriptive Analysis
Overconfidence	Mitigated initial confidence	“I had already invested a little bit and everything, so that was it.” ‘At first, I said to myself, I'm going to diversify a lot.’	The participant already has previous investment experience, which gives him a certain amount of confidence at the outset. He starts the simulation with the idea of diversification, a strategy perceived as ‘safe’.
	Loss of confidence due to market decline	‘The second day was a disaster.’ ‘The thing is, on the last day, when I saw that nothing was moving at all, it was hopeless.’ "At that point, I was actually 3% off, which was impossible. But up until then, you tell yourself, come on, I believe in it, I hope it will change. When there's a small	As he faces losses and the impossibility of moving up in the rankings, the participant's confidence gradually declines. He goes from initial confidence to a feeling of helplessness.

		gap, like 1%, 1.5%, I thought, with a lot of luck, it might work, but at that moment, I knew it wasn't possible."	
	“Double or nothing” strategy at the end of the experience	"So, in the end, what I should have done was put 100,000 on a single share. That would have meant that, even if I lost a lot, I would have been able to recover.’	Due to a desperate situation, the participant considers a ‘double or nothing’ strategy (putting all their eggs in one basket). This can be interpreted as an attempt to regain control or a final hope, rather than any real confidence in the strategy.
Representativeness Bias	Implementation of a common and previously used diversification strategy	"At first, I said to myself, I'm going to diversify a lot.’	The participant begins with a diversification strategy, which is a common and standard practice in investment risk management.
Anchoring Bias (Not found)	Not Applicable	Not Applicable	Not Applicable
Herd Behavior (Absence of)	No influence from other participants	‘No, actually, I was just looking at the graph. I was looking at the graph. I didn't pay much attention to what the others were doing.’	The participant does not appear to have been influenced by the decisions of other trading participants during the simulation. His decisions are based on their own observation of the charts and his personal considerations.
	Using rankings as motivation, not as a decision-making tool	‘I was keeping an eye on the rankings, but not too much.’	Rankings give him motivation, but the rankings don't guide his decisions. He's interested in where he stands in relation to others, but he doesn't try to copy them.
Availability Bias	Use of graphic information and the names of well-known companies	'No, actually, I just saw the graph. Often they were CAC 40 companies. Well, at least I knew the name of the company.’	The participant relies on the graphs and names of companies he is familiar with. The visual availability of information and familiarity guide his choices.
Prospect Theory	Loss aversion and aversion to selling at a loss	‘Oh no, I shouldn't have sold, I'm going to do the exact opposite.' 'At that point, I said to myself, I absolutely have to reverse the trend. I don't know how. I said to myself, I absolutely have to. 'I didn't want to cut my losses, so I held on to the shares.’	The participant expresses their aversion to loss, not wanting to sell shares that are falling in value, hoping for a rebound. He is looking to ‘turn loss into profit's’.
	Discouragement due to lack of market activity	“The thing is, on the last day, when I saw that nothing was	The lack of movement on the last day of trading leads to discouragement and

		happening, it was hopeless.” 'We were all discouraged and demotivated because nothing was happening.’	demotivation, as there are no more opportunities to recover or limit losses.
Student I.7.			
Theme	Codes	Statements	Descriptive Analysis
Overconfidence (Absence of)	Initial confidence very low	‘Well, for me, it's because I've never traded before and I've always been somewhat interested in it. And when I saw this, I thought it was an opportunity to gain some experience in this field."	The participant expresses a lack of experience and low confidence in his trading abilities at the beginning of the experience. He is in a process of learning.
	Growing concerns over losses	“Even though I knew I was losing money, I didn't really know when to stop or keep going.” ‘It was like a chain reaction: I kept losing and losing and losing, and I didn't know how to reverse the trend. That was the most noticeable thing, and what I found most frustrating.’	The participant experiences a series of losses, which undermines his confidence and causes him to doubt his decisions and trading in general. He questions his ability to ‘control’ risk.
Representativeness Bias (Not Found)	Not Applicable	Not Applicable	Not Applicable
Anchoring Bias	Not Applicable	Not Applicable	Not Applicable
Herd Behavior	Comparison in the ranking	“And I said to myself, well, given the ranking, that's just how it is. It's the feeling of feeling all alone in defeat."	Realising how he ranks compared to others adds to his frustration.
Availability Bias	Reliance on immediately available information	"I thought to myself: we're taking part in a stock market game, so we need to look at the graph.’	The participant relies mainly on the charts on the trading platform to take decisions, as this is the most easily accessible information.
Prospect Theory	Strong aversion to loss	“The most memorable and frustrating time was when I started losing money and didn't know how to get back on track.” ‘It was a spiral: I lost, lost, lost, and didn't know how to get out of it. That was the most memorable	The participant expresses great frustration and a sense of desperation in the face of losses. The inability to ‘stop’ or recover is very pronounced.

		thing, what I found most frustrating.'	
	Emotional reaction to losses	What this generated was quite frustrating because I thought, well, given the ranking, that's just how it is.	Losses result in an emotional spiral of frustration and discouragement.
Student I.8.			
Theme	Codes	Statements	Descriptive Analysis
Overconfidence (Absence of)	Low initial confidence due to lack of experience	"Right away, I quickly felt, how can I put it, not equal to the others. I felt left behind because they had already participated in scholarship competitions or were trading on their own, so they were talking about things, but I said to myself, "We didn't take the same courses, it's not possible."	The participant expresses a feeling of being inferior and not fitting in with other participants who already have experience, which makes him feel "not good enough".
	Growing discouragement due to failure	'Completely, total abandonment. In the afternoon [of the third day], the American market was about to open, so I said to myself, maybe there will be some moves, and in the end, I checked, but nothing good happened.'	Given the impossibility of improving his ranking and the persistent losses, the participant feels completely abandoned and demotivated.
Representativeness Bias	Applying academic knowledge	"I would have used Excel, tried to estimate the expected returns, and done exactly what we were taught to do."	The participant considers applying academic concepts such as Markowitz or expected return calculations, demonstrating an effort to rely on "theoretical" representations of good financial management.
Anchorage Bias (Not Found)	Not Applicable	Not Applicable	Not Applicable
Herd Behavior (Absence of)	Feeling of isolation and not being part of a group	"I was behind the others because they had already participated in scholarship competitions or were trading on their own."	The participant feels left behind and does not speak the same language as others who have more experience.
Availability Bias (Absence of)	Not Applicable	"During the afternoons when nothing was happening at the market, I tried to find out more. I found a	During periods when the market was "dead," the participant looked for information and found a book on managing emotions.

		book written by a psychiatrist.'	
Prospect Theory	Strong aversion to loss	'I never know how to make a gain. A feeling of complete abandonment.'	The participant did not have the opportunity to "make any gains" and experienced a "feeling of complete abandonment" due to the losses.

5. Result Analysis

5.1. Overconfidence

Our interviews reveal that overconfidence is very weak : some participants strongly insist on their lack of experience in stock market trading. Furthermore, the overconfidence sometimes identified tends to decline over the experiment, particularly in response to a market perceived as unfavorable, and disappointment resulting from unmet financial expectations. For some, overconfidence is therefore very low or absent in the beginning (I.8., I.7., I.5.). We also observe a gradual decline in confidence as experience increases (I.6., I.8., I.7.); thus, the accumulation of losses and the inability to improve the situation undermine confidence, leading in some cases to resignation or despair (Maier & Seligman, 2016 ; Frydman & Camerer, 2016). Some participants (I.2., I.3., I.5.), even though they record losses, maintain confidence through self-regulation (I.2.) (Gross, 1998), by interpreting their past experiences (I.3.) or by validating their intuition after rejecting some external recommendations (I.5.). Participant I.3. is the most consistent in his overconfidence. Finally, when faced with situations they consider hopeless, some participants (I.6., I.4.) consider 'double or nothing' or 'risk maximization' strategies (Kurdoglu et al., 2023), which are more indicative of desperation than overconfidence as such.

5.2. Representativeness Bias

Our results demonstrate that this bias is present and relatively stable over time, influencing participants' strategies and perceptions.

Participants I.3., I.2., and I.4. use their past trading experiences and try to apply these patterns to stock trading, even if it is not always appropriate (e.g., 'scalping trading' for I.3.). Past experience serves as a kind of 'sample' on which they base their decisions (Ikram, 2016).

Participants I.4. and I.8. use some academic references: they rely on some technical indicators ('if it's well known, there must be a reason...') or, after a failure, return to academic models (Markowitz for I.8.) as 'representations' of best practice. In addition, knowledge of specific companies (I.5.) seems to serve as a representation of reliability.

5.3. Anchoring Bias

This bias seems to occur only rarely, but it shows up as reference points or anchoring in negative performance. However, some anchors develop over time, either based on

specific technical indicators (I.4.) or fixed limits: participant I.3., for example, uses very inflexible limits (+20%/-20%) as anchoring points.

5.4. Herd Behavior

Generally not very prevalent, rarely involving direct copying of the trading behavior of other participants or the market (Luo et al., 2023). Given the stock market configuration, herd behavior refers more to the relationships developed within the group than to the development of market trend following, which in some cases is perceived as a "mirage". In other words, the group serves as a kind of "reservoir" for recorded disappointments. Several participants (I.2., I.3., I.4., I.5.) express resistance to following the risky behavior of others or to trusting the media. For participants I.3. and I.7., the fact that others are experiencing financial difficulties reassures them about their own situation.

5.5. Availability Bias

Our results demonstrate a strong presence of this bias, which appears to be consistent among all participants. The bias involves reliance on accessible information: graphs, well-known company names, basic news stories, popular indicators, or even ChatGPT for quick searches. Participants seem to favor what is easy to get and process. Some participants seem to have ignored information that was 'unavailable' or not easily analyzable (I.4., I.8.): fundamental analysis is often considered too time-consuming or irrelevant for the short-term perspective of the experiment.

5.6. Prospect Theory

Loss aversion prevails among most of the participants, especially because of the bear market (Ingalagi, 2024). Losses are experienced with frustration, disappointment, or even desperation (Wang, 2023).

Several reactions have been identified:

- Some participants (I.2., I.4.) try to reduce the negative emotional impact through diversification strategies, investing small financial amounts, or by being aware of the virtual nature of the financial amounts invested (Quoidbach et al., 2010).
- After losses, some adopt a 'what's done is done' attitude in an effort to recover, illustrating increased risk-taking in the area of losses (Kurdoglu et al., 2023).
- A reluctance to 'sell at a loss' (participants I.6., I.4., I.7., I.8.): a strong tendency to hold on to losing positions in the hope of a rebound, even if the outlook is poor (Sharma & Firoz, 2020).
- A search for small financial gains (I.3.): some appreciate frequent small gains and therefore increase the number of transactions.
- The development of frustration caused by the negative performance of the market and the value of their portfolio (I.5., I.6., I.8., I.7.). In other words, the lack of market movement, which means no opportunities to make gains or recover losses, is a major source of discouragement (Frydman & Camerer, 2016).

In summary, analysis of the eight interviews reveals that the market environment (perceived as unfavorable) and lack of experience (for the majority of participants) had a significant impact on the manifestation and evolution of biases.

6. Conclusion

Our qualitative study explored the dynamics of cognitive biases among eight participants involved in a three-day stock market trading simulation. The aim was to understand how psychological factors arise and evolve during a period of trading under performance pressure. Unlike the usual quantitative approaches in finance, the qualitative methodology used in this study – involving semi-structured interviews – revealed nuances, underlying emotional dimensions and the role of intuition in decision-making, providing a better understanding of some behavioral patterns.

The experimental environment, although simulated with virtual money, was designed to replicate the informational and time pressure constraints of real trading by using the ABC Bourse platform. Participants were able to access the performance data of their peers, putting additional pressure. A key part of this simulation was the market context, which many participants saw as unfavorable, with the CAC40 index showing a slight downward trend. This stock market situation turned out to be a key factor influencing the evolution of the biases taken into consideration.

Among the biases, loss aversion came out as the most dominant for most participants, a phenomenon that was intensified by the bear market. The losses incurred generated strong emotional reactions, ranging from frustration and disappointment to desperation. The negative market performance and decline in portfolio value contributed to feelings of discouragement, limiting the perception of opportunities for recovery. Responses to this aversion ranged from efforts to mitigate the emotional impact through diversification or investment of small amounts, to increased risk-taking after losses in a ‘what's done is done’ attitude, to a persistent refusal to ‘sell at a loss’ in the hope of a rebound. This widespread aversion to loss depending on market performance highlights its central role in the context of losses.

Overconfidence was influenced by market conditions. Initially low among some inexperienced participants, it decreased during the experiment in response to the unmet financial expectations. The accumulation of losses and the feeling of inability to reverse the situation undermined confidence, leading to resignation or despair. While some more experienced participants were able to maintain a degree of confidence through self-regulation or positive interpretation of their past experiences, the overall pattern of this bias was a decline because of negative results.

The availability bias was evident throughout the simulation. Participants favored information that was easily accessible: graphs, familiar company names, basic news items. The rejection of fundamental analysis considered too complex in the context of the experiment illustrates this dependence on immediately available information: the speed of trading in a difficult market reinforced the preference for quick access to information. Representativeness bias was also identified, through the application of past experience-

based models. Herd behavior did not result in direct copying of market trends, which were considered with suspicion, but rather a search for comfort within the group of participants. The stagnation of the market may also have led to shared discouragement. This suggests that the market environment “redirected” this bias from stock market imitation towards social support. Finally, anchoring bias was not very prevalent. It mainly appeared in the use of reference points. In short, our findings show that biases don't follow a linear path over time and depend on a number of factors, including previous experience, results from past trades, market perceptions and emotional reactions.

By revealing the emotional and cognitive dynamics at play in a simulated trading experience, this study contributes to the development of financial tools and educational strategies better tailored to investor behavior.

7. Further Research Avenues

Given that our results are dependent on the experimental design and the market configuration during the experiment, some avenues for further research could be explored :

- Our study was conducted in a market perceived as ‘unfavorable’. Questions that could be addressed in future research include how biases such as loss aversion, overconfidence, or herd behavior might evolve in a bull market or in a highly volatile market.
- Analyzing interactions between biases: individual analyses suggest that biases do not operate alone. Future research could specifically explore how different biases influence each other and whether they build negative or positive feedback cycles that could affect decision-making.

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