Toward a Functional Model of Emotions in Decision-Making: A Qualitative Analysis in Simulated Stock Markets

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Summary

This study explores the influence of emotions on investment decision-making in situations of uncertainty, using an experimental protocol combining a stock market simulation and focus group analysis. Eight management students took part in twelve trading sessions on a stock market platform, followed by a focus group aimed at explaining their emotional experiences.

Thematic analysis of the verbatim responses reveals an emotional structure to decision-making based on three distinct functions: cognitive framing, which shapes the perception and assessment of the situation; motivation, which influences the impulse to act or to refrain from acting; and retroactive reasoning, which leads to post-decision learning. Our results challenge the idea that emotions are nothing more than irrational disruptive forces.

On the contrary, they appear to be dynamic and sometimes adaptive components of reasoning in contexts of uncertainty. The suggested three-part model complements existing theories in decision psychology and opens up new avenues for research on affect regulation in highly uncertain contexts. Although research on emotions in decision-making is extensive, few studies have explored in depth and qualitatively how individuals experience and make sense of their emotions in simulated and uncertain contexts. The study not only applies a qualitative method, but also demonstrates its usefulness in challenging assumptions, such as the irrationality of emotions.

Keywords: Emotions, Decision-Making, Qualitative Methodology, Behavioral Finance, Affective Regulation.

1. Introduction

Decision-making in uncertain contexts is a key issue in behavioral finance and psychology. Individual investors have long been perceived as purely rational agents who base their investment decisions on cost-benefit analysis (Roland-Lévy & Kmiec, 2016). Their decision-making process is now recognized as being deeply influenced by affective and emotional factors (Damasio, 1995; Loewenstein et al., 2001). This shows that emotions do not just accompany decisions: they structure, guide and sometimes trigger them.

In behavioral finance, emotions play a decisive role in interpreting signals sent to markets, assessing risk and choosing investment options. Traditional models of investor behavior have largely failed to incorporate these subjective dimensions, favoring instead an "idealized" representation of the rational decision-maker. However, stock markets are defined by uncertainty and emotional reactivity.

2. State of the Art

This study aims at analyzing this dynamic by articulating emotions as structuring functions in the decision-making process of individual investors. We hypothesize that they play three distinct and complementary roles: framing perception, motivating or inhibiting action, and guiding post-decision evaluation. Through an experiment based on a stock market simulation and a focus group approach, we analyze the discourse of individual investors confronted with real decisions in an uncertain environment. The objective is to propose a model of how emotions work in decision-making, which could contribute to existing theoretical frameworks while offering concrete data for improving decision-making practices.

Decision-making in contexts of uncertainty increasingly incorporates affective and emotional dimensions as structuring elements of judgement. This trend can be explained by the recognition of the role of emotions at several levels of the decision-making process: perceptual, motivational and reflective (Ansel, 2010; Habib et al., 2018). In situations of uncertainty in particular, emotions shape the interpretation of available options, the perception of risk and commitment.

Some theoretical models suggest that emotions arise from cognitive evaluations of the environment (Frijda, 1986) and in turn influence judgements. Emotions are not simply incidental responses, but serve as functional guides for action, directing choices based on goals and perceived situations (George & Dane, 2016). It is particularly evident in the role of anticipated regret or disappointment as drivers of decision-making (Tsiros, 1998; Summers & Duxbury, 2012).

Many studies have shown that specific emotions influence financial decisions in different ways. For example, a positive mood can make people more optimistic and underestimate risks, while a negative mood is more likely to make them cautious and even more analytical (Bodenhausen et al., 2000; Duque et al., 2013). This perspective contradicts the traditional view of a purely rational approach and is consistent with behavioral economics models that incorporate cognitive and behavioral biases.

In experimental finance, emotions can sometimes serve as heuristics: investors rely on their feelings to estimate the value or risk of an asset, especially when data is ambiguous or complex (Moutier, 2015; Barou, 2008). Stress or intense emotions can make people make decisions too quickly or even irrational ones because of cognitive overload or overuse of the fast-thinking system (Kahneman & Tversky, 1979; Buchmann et al., 2010).

However, these influences are often just seen as temporary factors in experimental protocols. Few approaches try to model how emotions shape all aspects of the decision-making process, from anticipation to post-decision evaluation (Lazarus, 1991; George & Dane, 2016; Andrade & Ariely, 2009). However, these affective dynamics can permanently influence investor behavior by reinforcing some biases or promoting emotionally marked decision-making patterns.

2.1. Cognitive Framing by Emotions

Emotions shape how individual investors process available information, assess risks and make investment decisions. This framing function is based on the idea that emotions drive perception even before reasoning fully activates.

Lerner et al. (2015) demonstrate that specific emotions such as fear, anger and happiness have different effects on decision-making. For example, fear leads to a more pessimistic assessment of risks, while anger increases confidence and promotes more polarized judgements. Slovic et al. (2007) introduced the concept of 'affective heuristics,' whereby individuals use their emotions as a shortcut to quickly judge a situation without in-depth analytical processing. Kahneman (2011) incorporates these findings into his model of thinking systems and concludes that System 1, which is fast and emotional, predominates in situations of uncertainty.

Here, a distinction must be made between integral emotions and incidental emotions (Lerner et al., 2015). The former are directly related to the decision-making situation, while the latter come from an external context but also affect judgement. This differentiation is essential for analyzing the apparent irrational reactions of some individual investors.

2.2. Emotion as a Motivational Factor

The second major role of emotions is their ability to motivate or inhibit action. Lazarus (1991) describes emotions as adaptive responses to subjective evaluations of the

environment, generating 'tendencies to act' (Frijda, 1986). This view is confirmed by Lerner et al. (2015), who highlight that integral emotions – those directly related to judgement or decision-making – strongly influence decision-making by providing motivations for action or inaction. Baumeister et al. (2007) confirm that emotions serve as internal signals about the status of personal goals, facilitating investment choices in situations of uncertainty. For their part, Loewenstein et al. (2001) argue that emotions modulate conscious cognitive evaluations and directly influence the decision-making process, including in unconscious ways.

This motivational dimension is particularly noticeable in the behavior of novice traders. For example, anger can drive people to compensate losses in an approach-oriented manner (Harmon-Jones et al., 2016), which is consistent with the idea that anger is associated with strong physiological arousal and confrontational behavioral responses. For Tsai & Young (2010) and Lerner & Tiedens (2006), anger influences risk perception and leads to riskier behavior. Fear, on the other hand, often causes people to withdraw prematurely from a position. It is described as an emotion of withdrawal, accompanied by intense physiological arousal and a focus on the threat (Harmon-Jones et al., 2016; Lo et al., 2005; Lerner & Keltner, 2001). It leads to less risky choices, sometimes at the expense of potential returns, due to hyperreactivity to uncertainty. Happiness, on the other hand, can encourage risk-taking or holding a position even when it goes against the initial strategy (George & Dane, 2016; Wang et al., 2014), by promoting a more optimistic view of future outcomes. Gosling & Moutier (2017) show that positive emotions can alter cost-benefit analysis by reducing risk perception.

These dynamics show that emotions are drivers of action. In uncertain environments, this function becomes crucial: it explains why some decisions are made despite incomplete or contradictory information. As Ansel (2010) explained, uncertainty amplifies or attenuates emotional intensity depending on the expected outcome, influencing the strategy chosen. Finally, Loewenstein et al. (2001) emphasize that emotions can be seen as heuristics, simplifying decisions in cognitively costly contexts.

2.3. Emotional Reactions after Decision-Making

The influence of emotions does not end with the decision: emotions accompany post-decision evaluation and influence future learning. Zeelenberg and Pieters (2007) put forward a theory of regret regulation, according to which individuals adjust their future behavior to avoid repeating a negative emotional state. This perspective is reflected in the theory of anticipated regret (Loomes & Sugden, 1987; Tsiros, 1998), which suggests that post-decision emotions, such as regret or relief, influence future decisions based on their anticipated emotional potential.

Sokol-Hessner et al. (2009) show that emotional regulation reduces loss aversion, improving decision-making performance in the long term. This idea is consistent with the

work of Lerner et al. (2015), who emphasize that integral emotions do not only influence immediate choices but also shape preferences and decision-making patterns over time.

Emotions such as regret, pride, and shame trigger reflective processes that are essential for strategic progress. For example, regret is identified as a key factor in persistence in losing positions (Summers & Duxbury, 2012), while pride can reinforce compliance with internal rules or pre-established plans. The role of these emotions in post-decision behavioral adjustment is supported by George and Dane (2016), who point out that negative emotions signal a need for more in-depth information processing, promoting the development of risk management rules. This retroactive function of emotions is thus a kind of affective self-learning that is essential for behavioral regulation. This is consistent with Damasio's (1995) view that somatic markers – emotional" traces" related to past experiences – adaptively guide future behavior even in the absence of complete rational analysis.

3. General Methodological Perspective

For this research, we decided to use a qualitative methodology, which is not very common in finance studies. However, qualitative methods offer a detailed and in-depth understanding of human behavior, perceptions and experiences. Unlike quantitative approaches, which focus on statistical measurements and analyses, qualitative approaches aim to explore underlying mechanisms by looking at the meaning, context and complexity of phenomena (Elo & Kyngäs, 2008). This methodology therefore favors studying a phenomenon in its natural environment, focusing on the 'how' and 'why' of the behaviors observed. Researchers using this type of approach aim to identify structures or patterns from non-standardized data, such as interviews, observations or content analysis (Hsieh & Shannon, 2005).

A fundamental feature of approach is its inductive perspective. Rather than testing predefined hypotheses, the inductive perspective gradually builds theories from the data collected. This logic thus promotes the emergence of concepts through a flexible and adaptive process that remains focused on the participants' experiences (Maykut & Morehouse, 1994). In this sense, this is particularly relevant for studying new or relatively unexplored topics, where knowledge is built up as the analysis progresses (Bendassolli, 2013).

A frequent criticism of qualitative research is that it uses small sample sizes. However, the methodological approach chosen is not statistical generalization, but rather an in-depth exploration of a given phenomenon (Morse, 2000). The aim is to achieve a nuanced understanding based on the depth of the data rather than its volume (Sandelowski, 1995). A small sample allows for more in-depth individual narratives, the development of trust with participants, and the capture of nuances that quantitative tools tend to obscure. Qualitative research is based on an iterative process in which data collection and

analysis evolve together. Study can thus be adaptable as new or relatively new research questions emerge. A limited sample size promotes this flexibility and makes it possible to explore the phenomena under observation in greater depth (Guest et al., 2006). It is therefore not statistical representativeness that gives the study its validity, but rather the density of information, analytical rigor and the ability to generate new perspectives.

In this study, the choice of a qualitative methodology combining experimental simulation and focus groups was particularly relevant for exploring in depth the complexity of the emotional processes at work in stock market decision-making. This approach made it possible to go beyond linear models by providing access to dynamics that only the participants' words could reveal. Our methodological approach thus helped to develop a functional model of emotions based on the dimensions of framing, motivation and post-decision regulation.

4. Experimental Design

4.1. Participants

For this study, the sample consisted of eight students studying Management Sciences at the University of Mons (Belgium). Participation in the experiment was conditional on prior confirmation of completion of a finance-related course, thus ensuring a minimum level of familiarity with stock market mechanisms. Candidates were selected following a call for participants issued at the end of October 2024 via institutional channels (Teams and electronic mailboxes). In order to reinforce the validity of the sample, students who were interested had to justify their participation beyond financial considerations. The final sample was predominantly male (seven men and one woman), which is consistent with well-documented findings in the literature on male overrepresentation in trading-related activities (Barber and Odean, 2001; Finet et al., 2022).

It should also be noted that this study was conducted in accordance with ethical principles for research in the humanities. Participants were informed of the experimental and voluntary nature of the study, gave their informed consent, and were guaranteed the confidentiality of the data collected. In addition, participants were remunerated for their participation in the experiment. This remuneration included the trading sessions and the group discussion (focus group). An additional non-financial reward was promised to the student who performed best on the stock market at the end of the experiment, in order to reinforce motivation.

4.2. Experimental Setup

The experiment took place over three consecutive days in a controlled environment simulating a trading room. The protocol involved a live trading situation using an online stock exchange platform (ABC Bourse). We chose this platform because of its ability to simulate real-time stock market trading while creating a fictional stock market game. The

rankings provided in real time by the stock market platform added an emotional dimension, making it easier to observe behavior in a competitive situation, as the reward was dependent on the person's position in the rankings.

In practical terms, participants were given a virtual portfolio of €100,000 to invest exclusively in CAC40 companies. No initial positions were defined by the researchers, leaving the portfolios consisting solely of cash in order to observe the first investment decisions made in a situation of uncertainty. Twelve trading sessions, each lasting one hour, were scheduled over three days (four per day). During these sessions, participants could view their ranking in real time based on the value of their portfolio.

4.3. Measuring Devices

4.3.1. Self-Assessment Questionnaire about Emotions

First, we analyzed participants' emotional responses as the experiment progressed, as people tend to forget emotional peaks within 24 hours (Can et al. 2019). In addition, Seban (2016) highlights three phases for European markets, with market behavior largely unrelated to potentially different emotional responses during each phase:

- Opening zone (9:00 a.m. – 11:30 a.m.): during this period, European investors process information from the US markets and, to a lesser extent, from the Asian markets. In addition, some announcements may have been made after the close of European markets. Overnight trends in commodity and currency prices may also influence investor behavior in early trading.
- Dead zone (11:30 a.m. – 2:30 p.m.): during this period, investors assess the large amount of information received during the opening phase and get ready for the US markets to open. The dead zone can be seen as a waiting zone in which investors serve to create new opportunities (Kabbaj, 2011).
- Closing zone (2:30 p.m. – 5:30 p.m.): during this period, investors are strongly influenced by the configuration of the US markets. It is generally during this period that trading volumes are highest on European markets (Cushing and Madhavan, 2000; Bacidore et al., 2013).

The participants' emotions were assessed throughout the experiment using a questionnaire designed to evaluate their emotional state after the opening zone, the dead zone and at the end of each day of the experiment (the closing zone). The questionnaire used (DEQ Questionnaire) was developed by Harmon-Jones et al. (2016) and each item refers to a primary emotion (anger, disgust, fear, anxiety, sadness, desire, relaxation and happiness). By calculating the total score for each category, we were able to identify the predominant emotion after each important moment on the stock markets (opening, dead and closing zone).

4.3.2. The focus Group: Introduction to the Methodological Tool

A focus group was organized after the three days of experimentation. This method of data collection seems to be very little used in qualitative studies (Pérez-Sànchez and Delgado, 2022). However, focus groups have the advantage of producing a wide range of responses and revealing how respondents' opinions diverge or converge on a given topic (Moscovici and Bushini, 2003). In addition, this tool brings out spontaneous ideas through interactions between participants, ideas that an individual alone might not have thought of (Akyıldız and Ahmed, 2021), as in the case of semi-structured interviews. However, focus groups must meet a number of criteria in order to achieve their intended purpose. First, participants must share the same characteristics so that they can discuss the topic presented in an equally manner (Rabiee, 2004).

In our case, the focus group followed a laboratory experiment in which all participants were placed in a trading room and had the same academic profile. Secondly, it is important to note that the group participants may know each other. This point is debated in literature. On the one hand, some authors emphasize that it is essential to put together a group of strangers to prevent one person who is influential outside the discussion from dominating the opinions of the other participants (Thomas et al., 1995). On the other hand, the literature suggests that the fact that focus group participants know each other creates a climate of trust and encourages the spontaneous expression of ideas (Kitzinger, 1994). We therefore assume that our participants have a reasonable level of familiarity with each other due to their shared academic background and that informal contacts are likely to have developed.

4.3.3. Organization of the Focus Group

Prior to the arrival of the participants, the focus group space was prepared to create a welcoming and friendly environment. The tables were also placed in a circle to encourage interaction between participants and put them on an equal footing. Once the participants had been seated, the discussion facilitator briefly introduced himself and explained how the session would proceed. To build a climate of trust, participants were invited to introduce themselves in turn to encourage discussion.

At the beginning of the discussions, participants were informed that the session would be video recorded. This decision was justified by the need to facilitate the transcription of the exchanges, in particular to be able to identify the speakers, which would have been difficult to achieve with a simple audio recording. It was also specified that all data collected would be treated as strictly confidential and used exclusively for research purposes. The discussion facilitator also emphasized the importance of speaking freely and that all contributions would be considered useful for understanding decision-making processes in stock markets.

To start the discussion, we provided a sheet on the topic we wanted to address during the focus group, namely the influence of emotions on the decision-making process of

individual investors. This topic was developed based on the state of the art regarding the influence of different variables on investor behavior. Decision-making in situations of uncertainty is particularly prevalent in stock markets, where investment results can often follow a very random path. Uncertainty can thus lead to greater dependence on intuitive reasoning (Hensman and Sadler-Smith, 2011; Elbanna and Fadol, 2016), in which individual investors use their emotions as a guide in their decision-making (Sayegh et al., 2004; Sinclair and Ashkanasy, 2005). Emotions tend, in particular, to influence individual investors' decision-making through their perception of risk (Hirshleifer, 2001; Lovric et al., 2008).

Each participant was then asked to express how much importance they gave to this topic (Kitzinger et al., 2004). By involving the students in the discussion, we wanted to encourage them to pay attention and explain their different points of view. Participants were asked why they thought emotions were important in decision-making. We then displayed the following emotions on a board visible to all participants: anger, disgust, fear, anxiety, sadness, desire, relaxation and happiness. The discussion then continued with further questions based on the different answers that had been given. The discussions were 3 hours and 42 minutes long.

4.3.4. Data Processing

The verbatim analysis was conducted using a thematic approach drawn from the methodological framework provided by Braun and Clarke (2006), Byrne (2022) and Bingham (2023). First, a careful reading of the transcripts (familiarization) helped the researchers identify the passages most relevant to emotions in general. This exploratory phase then led us to identify sub-themes reflecting some of the different aspects of the influencing factors perceived by the participants. These sub-themes were then grouped into a broader category, each referring to the influence of emotions on individual investors' decision-making. To ensure the validity of the results, initial independent coding was carried out by two researchers for the first transcripts, followed by a process of comparison and adjustment of the codes.

5. Results and Discussion

5.1. General Context of the Experience

Table 1. Performance of the CAC 40, DJ30, NASDAQ 100 and TOPIX during the Experiment.

Index	01.27.2025	01.28.2025	01.29.2925	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

Source : Authors

5.2. Descriptive Statistics of the Sample

The large proportion of men (see Table 2) in the sample is consistent with previous research, which shows a more pronounced tendency among males to participate in stock market-related activities or, more broadly, in contexts involving a playful dimension (see Barber & Odean, 2001; Finet et al., 2022). Furthermore, a large proportion of participants seemed to have a minimum level of knowledge about how financial markets work. However, it is possible that some candidates overestimated their financial skills in order to be chosen to take part in the study.

Table 2. Descriptive Statistics of the Sample

Participant	Gender	Age	Previous Knowledge of Stock Markets
I.1.	Man	22 years old	Yes
I.2.	Man	26 years old	Yes
I.3.	Man	23 years old	Yes
I.4.	Man	21 years old	Yes
I.5.	Woman	25 years old	No
I.6.	Man	21 years old	Yes
I.7.	Man	21 years old	Yes
I.8.	Man	24 years old	No

Source : Authors

5.3. Analysis of the Results

The data from the focus group was analyzed using a thematic coding grid (see Table 1) structured around the three main functions of emotions in decision-making: cognitive framing, motivational function and retroactive function. Each segment was then coded manually based on the different emotions identified, the decision-making context and the observable or reported effect on behavior.

Table 3. *Thematic Coding Table for the Focus Group.*

Coding Indicator	Sub-Theme	Emotional Function
Decision paralysis, uncertainty, inability to act, negative anticipation, withdrawal, reaction to an unexpected event	Confusion related to anxiety, pessimistic anticipation and resignation, focus on signals perceived as threats	Cognitive Framing
Refusal to enter or hold a position despite a gain, deliberate use of emotion to achieve a purpose, relaxation, neutral thinking	Inhibition of actions due to fear or doubt, strategic mobilization, voluntary regulation to encourage clarity	Motivational Function
Remarks on the necessity of maintaining emotional distance and being cautious about confusing results with feelings	Post-decision reassessment, dissociation between performance and affect	Retroactive Function

Source : Authors

5.1. Cognitive Framing Function

The cognitive framing function of emotions refers to the role they play in building mental representations of decision-making situations. By influencing risk perception, choice of options or interpretation of stock market signals, emotions actively participate in the selection and interpretation of information. This function often precedes action and determines what is perceived as acceptable, threatening or promising.

> *'I didn't know when to sell, I was feeling uncertain.' I.8.*
>
> *'My emotions took over in this situation and encouraged me not to do anything.' I.5.*
>
> *'Disgust is a strong feeling, it leads to abandonment'. I.7.*

Some participants express decision-making paralysis related to perceived uncertainty, preventing them from taking initiative. Emotions (such as fear or anxiety) seem to directly affect the cognitive clarity of the situation. Indecision does not arise from a lack of

information but from a kind of emotional confusion that affects the ability to anticipate. Emotional uncertainty becomes a filter that distorts analysis and suspends judgement. This phenomenon corresponds to the activation of the affective evaluation framework described by cognitive evaluation theories (Moors et al., 2013; Scherer, 2009). Emotion guides attention towards negative or ambiguous signals, reducing the ability to process alternatives rationally (Pessoa, 2009). Recent work on the theory of 'risk as feelings' (Loewenstein et al., 2001) shows that this intuitive assessment often precedes conscious analysis and can paralyze decision-making, especially in contexts of uncertainty.

This emotional framing dynamic is supported by the results of the self-assessment questionnaire (see Table X) mentioned above, which reveals a systematic prevalence of anxiety at market opening. This level of emotional arousal at the beginning of sessions helps explain the biased interpretation of signals and cognitive paralysis mentioned by several participants. The assessed affect serves as an initial filter of perception, consistent with the verbatim comments relating to anticipated uncertainty.

Table 4. Negative Emotion Score at the Opening of Stock Markets over the Three Days of the Experiment.

Emotions	Day 1	Day 2	Day 3
Anger	48	44	58
Disgust	40	47	65
Peur	49	40	59
Anxiety	**65**	**60**	**86**
Sadness	52	46	55

Source : Authors

'I was already desperate that things could suddenly change for the better.' I.4.

'I was feeling desire, but anxiety and fear were overcoming me.' I.1.

The statements above express anticipated distress and a negative framing of the situation related to worry, thereby reducing their openness to a possible improvement in the situation. These statements reflect rigid pessimistic framing. Negative emotions such as distress, anxiety and fear operate as dominant emotional valences, blocking positive re-evaluation of the environment. The belief that nothing positive can happen becomes an interpretative filter, inducing a resignation bias. This type of reaction is consistent with models of emotional counterfactuality (Roese & Epstude, 2017), which show that chronic disappointment and the accumulation of negative emotions alter cognitive flexibility. The theory of emotional disengagement (Wrosch et al., 2013) suggests that intense negative affect can trigger mechanisms of avoidance or cognitive withdrawal. This bias is also

consistent with the work of Norem and Cantor (1986) on defensive emotional preparation, where pessimistic framing is used to avoid future disappointment, sometimes to the detriment of acting.

> *'We are strongly influenced by our emotions, especially during times of significant change. I.8.*
>
> *'Emotions are a bias; they lead to mistakes. I.5.*

Participants generally recognize the influence of emotions in situations of uncertainty or unexpected events. This recognition highlights the importance of some intense emotions in shaping judgement. Emotional shock affects the ability to integrate new or contradictory information. Emotions seem to reconfigure the hierarchy of perceived signals, focusing attention on elements that threaten or confirm the initial emotional state. This finding is consistent with observations from affective neuroscience: in the event of intense emotion, emotional alert systems (amygdala, cingulate cortex) partially block executive functions, reducing cognitive availability for analysis (Phelps & LeDoux, 2005; Hartley & Phelps, 2012). This leads to a strong focus on threatening stimuli and induces an emotional confirmation bias (Forgas, 2017), which limits the revision of hypotheses.

Consequently, analysis of the verbatim data reveals that emotions influence perceptions of risk, the relevance of information and the possibility of acting. Fear, anxiety, despair and emotional shock do not simply disrupt decision-making: they structure it. They alter the framework within alternatives are considered, induce biases in information processing and influence future decisions. This framing function, far from being secondary, is an emotional gateway to decision-making reasoning. It is in line with recent findings in neuroeconomics (Charpentier et al., 2018), which show that affective evaluation precedes and constrains logical reasoning in conditions of uncertainty.

5.2. Motivational Function

Emotions do not only influence the perception or interpretation of market situations; they also directly influence behavioral commitment. This motivational role refers to their power to drive or inhibit action, depending on their perceived valence, intensity and decision-making context. Analysis of the verbatim data shows that some emotions generate strategic impulse, while others result in caution or withdrawal. We present selected examples that were particularly relevant in this regard. This highlights the dynamic role of emotions in driving behavior. Numerous studies emphasize that emotions shape not only the intensity of decision-making commitment, but also how individuals assess their ability to act (Baumeister et al., 2007; Tamir, 2016).

> *'I felt frustrated at not being able to sell, but I was also very determined to recover my losses.' I.7.*
>
> *'When you have a desire, you can make more impulsive decisions.' I.2.*
>
> *'When I was anxious, I took action and made gains.' I.1.*

The first verbatim highlights the effect of frustration caused by loss. In this case, negative emotions do not inhibit action; on the contrary, they stimulate a desire for recovery, a type of emotionally motivated perseverance. These results coincide with data from the self-assessment questionnaire, which show that anger scores increased significantly between the dead zone and the close zone on the second day of the experiment (see Table 5). This type of response is consistent with the dynamics of the disposition effect, where regret or anger drive a propensity to hold on to a losing position, not based on rational reasoning, but in an emotional effort to redress the situation (the expectation of a rebound). Frustration therefore drives a behaving-in perspective (Frijda, 1986; Harmon-Jones et al., 2016).

Table 5. *Anger Scores During the Second Day of the Experiment.*

Emotion	Opening Zone	Dead Zone	Closing Zone
Anger	44	56	63

Source : Authors

Conversely, the second verbatim highlights the activator power of positive emotions. Desire reinforces the appeal of an anticipated gain, reducing reflection time and increasing the likelihood of impulsive behavior. The data confirm that this emotion reaches very high levels when the stock markets open (see Table 6), which corresponds with the start of trading sessions and the anticipation of potential gains by participants. This dynamic is well described in the literature, which states that positive emotions, when combined with a high level of arousal, lead to quick and risky decisions (Lerner et al., 2015) by reducing vigilance to potential negative consequences. System 1 described by Kahneman (2011), which is quick and intuitive, then predominates over analytical reasoning.

Tableau 6. *Scores Related to Desire during the Experiment.*

Emotion	Day 1		
	Opening	Dead Zone	Closing
Desire	124	116	122
	Day 2		
	Opening	Dead Zone	Closing
Desire	126	111	95
	Day 3		

	Opening	Dead Zone	Closing
Desire	99	83	60

<div align="center">Source : Authors</div>

However, the last statement adds some nuance to this perspective. Anxiety, an emotion usually associated with aversion, can paradoxically lead to increased behavioral engagement. Self-assessment questionnaires also show a strong presence of anxiety in all trading sessions (see Table 7). This is consistent with the fact that, in uncertain environments, anxiety can intensify attention and vigilance and even drive people to act to relieve emotional tension. If these actions result in gains, they can reinforce behavior based on emotional regulation rather than on a rational mechanism. This result confirms the findings of Hartley and Phelps (2012) on the ambivalent role of anxiety in decision-making: it can sometimes lead to prudence, but it can also prompt rapid action in order to gain back control.

<div align="center">

Table 7. *Scores Related to Anxiety during the Experiment.*

</div>

Emotion	Day 1		
	Opening	Dead Zone	Closing
Anxiety	65	61	58
	Day 2		
	Opening	Dead Zone	Closing
Anxiety	60	72	70
	Day 3		
	Opening	Dead Zone	Closing
Anxiety	86	72	66

<div align="center">Source : Authors</div>

'Sadness can be a strength, but it requires control.' I.3.

'I'm sad, but that doesn't stop me from moving forward.' I.7.

'Being relaxed means breathing slowly and clearing your mind.' I.3.

'Relaxation leads to more moderate actions.' I.2.

"Relaxation encourages rational decision-making." I.6.

The participants do not deny the importance of sadness, but value it as a potential catalyst. They talk about using negative emotions in a controlled way to support their commitment. Emotion is not something to be avoided, but rather an internal energy that needs to be directed. The participant seems to have developed a reflective regulatory skill that turns sadness into introspection or focus. This is an instrumentalized relationship with emotion. This position is in line with Tamir's (2009, 2016) work on instrumental emotions, which shows that individuals may seek negative emotions to improve their

performance, particularly in cognitively challenging contexts. Emotion becomes functional, as long as it is regulated and not simply experienced.

Participants report emotional regulation related to relaxation, which they see as a requirement for good decision-making. They actively look for being calm, not as a lack of emotion, but as a state of mind that helps them think clearly. This means being able to suspend automatic emotional responses to keep their attention focused. This intentional self-regulation mechanism is documented in the work of Gross (2014), who distinguishes between cognitive reappraisal and physiological stress management mechanisms. It also corresponds to a type of mindful decision making, a concept that is still emerging, but which connects emotional regulation, attentional clarity and adaptive choices (Hafenbrack et al., 2020).

These passages demonstrate contrasting forms of emotional impact on motivation to act. Some participants try to cognitively neutralize emotions, others mobilize negative affects as a catalyst for decision-making, while some create an emotional environment favorable to engagement: emotions do not determine action in a straightforward way, but can be reconfigured, instrumentalized or mitigated according to individual emotional "skills".

5.3. Retroactive Function

The retroactive function of emotions refers to their role after the decision, when they influence the interpretation of the outcome, the possible regulation of future behavior, and the development of strategies. This dynamic is based on the principle that post-decision emotions — such as regret, pride, shame or relief — feed a cycle that enables behavioral learning. An analysis of the verbatim data shows that participants develop an affective consciousness of their past decisions and try to extract guidelines or warning signs for the future.

> *'You have to control your emotions, not be ruled by them. I.3.*
>
> *'Being able to manage your emotions leads to better decision-making. I.3.*

The participant mentions a necessary distance from the emotions experienced during the decision-making process as a lesson learned. This post-decision position shows a desire for reflective emotional regulation. Emotion is perceived as potentially disruptive if experienced reactively. This statement illustrates the building of an emotional management standard developed post-decision. This process corresponds to the cognitive reorganization of emotional experiences known as *reappraisal* (Gross & John, 2003). It also fits into the *learning from affective outcomes* model (Ochsner et al., 2012), which explains how emotions become reference points for refining future decision-making processes.

The participant draws an explicit connection between emotional competence and decision-making performance. Emotion is not just a factor to be controlled but becomes a measure of strategic effectiveness. Emotional management becomes a skill that is integrated into performance, rather than an external or incidental element.

This verbatim aligns with the work of Buhle et al. (2014) on the neural correlates of emotional regulation, showing that emotional control is related to the activation of the prefrontal cortex, the center of planned decisions. It also reinforces the idea that emotional regulation determines the quality of decision-making in uncertain environments (Etkin et al., 2015).

> *'If you mix results and emotion management, you're done for.' I.3.*

The participant warns against confusing financial performance with emotional stress, which is perceived as a damaging factor. This statement reflects a post-experience perspective: performance should not interfere with emotional experiences, and conversely. This separate perspective becomes a defensive mechanism for clarification, avoiding excessive emotional self-attribution. This idea aligns with the regulatory regret theory (Zeelenberg & Pieters, 2007), which suggests that certain post-decision emotions have an adaptive function by signaling errors. It also ties in with models of affective metacognition (Efklides, 2011), which consider emotions as incidental information (meta-feelings) that help evaluate the effectiveness of one's own cognitive processes. Finally, the retroactive dynamic is reflected in the emotional trends between the start and end of trading days. We found a gradual reduction in some negative emotions such as disgust and anger, but anxiety remained high throughout each day (see Table 8). This emotional 'continuity' supports statements expressing a gradual recognition of the influence of emotions, but also the difficulty of moving away at the end of the experiment. Our results confirm the hypothesis that affective regulation is a distinct skill that is not acquired equally by all individuals.

Table 8. Scores for Anxiety, Anger and Disgust during the Experiment.

Emotions	Day 1		
	Opening Zone	Dead Zone	Close Zone
Anxiety	65	61	58
Anger	48	43	42
Disgust	40	54	43
	Day 2		
	Opening Zone	Dead Zone	Close Zone
Anxiety	60	72	70
Anger	44	56	63
Disgust	47	46	58
	Day 3		

	Opening Zone	Dead Zone	Close Zone
Anxiety	86	72	66
Anger	58	46	44
Disgust	65	54	56

Source: Authors

6. Conclusion

Our study contributes to the study of emotions in decision-making, particularly in environments with uncertainty, such as stock markets. By building a purpose-designed experimental protocol – a stock market trading simulation – and conducting a qualitative analysis based on a focus group, this work aims to gain insight into the emotional dynamics that are often simplified in traditional models. We believe that this research offers added value on two levels:

- Firstly, the originality of the methodological perspective. Creating a simulated trading environment generated real decision-making conditions, where financial issues and uncertainty are ever-present, thereby encouraging the emergence of authentic emotional states. Unlike approaches based on hypothetical scenarios or retrospective data, this method captured emotional reactions in real time, synchronized with decision-making processes. The focus group phase added to this studying by verbally expressing the participants' subjective experiences, cognitive interpretations and emotional regulation strategies. This synergy between the experimental and qualitative approaches, a relatively uncommon combination in the literature on emotional decision-making, gives the results internal and external validity.

- Secondly, the three-part model of emotional functions is an important theoretical contribution. Table 9 shows how emotions shape the decision-making process through three distinct functions: cognitive framing, motivational role and feedback role. Each function influences individual investors' decisions: framing guides attention and perception of information, the motivational role encourages or inhibits investment decisions, and the feedback role reflects post-decision assessment and learning. The effects on decision-making depend on the emotion experienced by the individual. For example, fear or anxiety can narrow an individual investor's analysis (cognitive framing), desire or anger can lead to impulsive behaviour (motivational role), while regret or disgust can influence how investment strategies are adjusted in the future.

- The distinction between cognitive framing, motivational function and retroactive (feedback) function provides an innovative framework for analyzing the integration of emotions into decision-making architecture. This approach challenges the narrow view of emotions as simple disruptors of rationality, demonstrating instead that they are dynamic and potentially adaptive components of reasoning.

For this purpose, the cognitive framing function illustrates how emotions can modify the perception and evaluation of available information. For example, an emotion such as fear can draw attention to potentially threatening situations, leading to a more conservative assessment of risks, while optimism can increase the perception of opportunities. This function highlights the ability of emotions to structure the subjective reality of individuals faced with complexity and ambiguity, going beyond valence to reveal specific modulations of information. The motivational function highlights the role of emotions in initiating or inhibiting action. Frustration resulting from a loss can thus encourage a re-evaluation of strategies, while satisfaction from a gain can reinforce a given strategy. This dimension is key to understanding behavioral dynamics, explaining why individuals may persist or disengage. It reveals that emotions are not just corollaries of decisions but driving forces. Finally, the retroactive function highlights the ability of emotions to guide post-decision learning. Regret, for example, can induce a critical review of past choices in order to avoid repeating mistakes, while the euphoria following success can consolidate effective behaviors. This emotional feedback cycle is critical to the continuous adaptation of decision-making strategies, particularly in dynamic environments where learning from experience is essential. The three-part model provides an analytical framework for explaining how emotions can simultaneously be sources of cognitive bias and drivers of behavioral adaptation.

Table 9. Summary of Emotional Functions in Stock Market Decision-Making

Function	Effect on the Decision	Emotions Involved	Behavioural Outcomes
Cognitive Framing	Guide the judgement	Fear, confidence, anxiety	Biased information selection, heuristics
Motivational	Plays an active or inhibitory role	Desire, anger, sadness	Impulsiveness, withdrawal, persistence
Retroactive	Post-decision evaluation of actions	Regret, disgust	Learning, strategy adjustment

Source: Authors

7. Additional Avenues of Research

Based on the results, several additional avenues of research could be considered to further develop and widen the scope of the suggested functional model of emotions. Firstly, this study, which is qualitative in nature and was conducted with a small sample of eight management students, could be extended by quantitative validation to assess the robustness of the three-part model (cognitive framing, motivational function, retroactive function) with a larger and more diversified sample of investors (in terms of age, gender and experience). This would provide evidence for generalizing the results from a simulated environment to real stock market contexts and help determine the intensity of each emotional function.

Furthermore, qualitative analysis highlighted the importance of emotional regulation among participants in the experiment, who consciously tried to control their emotions in order to make better decisions. It would therefore be useful to conduct a study on the emotional regulation strategies used by investors in situations of uncertainty. Such research could identify, classify and evaluate the effectiveness of various emotion regulation processes by examining their impact on short-term decision-making performance, emotional resilience and long-term investor well-being.

Finally, a third avenue of research would be to look at a longitudinal, cross-sectional perspective, which would involve studying emotional dynamics and their influence on individual investors' decision-making over a longer period of time. While the experiment took place over three consecutive days, a longer-term study would provide a better understanding of how emotions shape investors' behavioral trajectories and/or reinforce particular biases. Such a perspective would also provide insights into post-decision learning mechanisms and the emotional adjustments made.

8. Declaration of Competing Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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