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## Emotional Drivers of Financial Decision-Making: Unveiling the Link between Emotions and Stock Market Behavior

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#### **Abstract**

The assumption that investors are rational on the stock market is based on assumptions that have been widely criticized by behavioral finance. Behavioral finance has demonstrated the presence of behavioral and cognitive biases, as well as emotions, which may influence the judgment of stock market traders, particularly small investors unfamiliar with the financial markets. The aim of this article is to provide a framework for understanding the emotions felt by individual investors in a bearish stock market. For this purpose, we use experimental finance and methodological elements from qualitative research and, more specifically, the analysis of written documents. This method appears to be rarely used in academic studies, despite the fact that it allows us to get closer to the reality of human emotions and their mutual influence on decision-making. We analyzed the emotional patterns developed by eight students enrolled on a university management course who were asked to trade continuously for three days. At the end of these days, they wrote down in their own words (i.e. without the intervention of the organizers) everything they had felt during the experiment. Using reading guidelines from the literature on emotions, the different passages transcribed were analyzed to determine the corresponding emotion. Our results confirm the strong presence of negative emotions, which may have led to abandonment and withdrawal as time passed and the disappointments experienced. The results obtained are obviously strongly conditioned by the negative stock market context prevailing during the experiment. Our findings - even if they correspond to a particular context and a small sample size - could provide a useful reference for understanding how market sentiments could develop on a large scale.



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#### 1. Introduction

Building on economic psychology, which aims to understand irrational behavior, the decisions of economic agents cannot be reduced to the rationality of homo economicus (1). According to Chanut et al., the limits of perfect rationality are rarely discussed in economics and are relatively overlooked in management studies (2). Despite being questioned, the perfect rationality model has not been fundamentally replaced. Based on this observation, this article aims to focus on decision-making in the field of trading. In this context, we consider individual investors characterized by a chronic lack of reference in the stock markets and who rely on signals that they might mistakenly interpret as information (3). The individual investor must therefore develop a personal framework intended to guide them toward adopting a specific investment strategy. This framework will be shaped by various aspects of the investor's personality: their knowledge, expectations, risk preferences, moods, and emotions. In this paper, we will focus on emotions: the inexperienced investor may be particularly under the influence of negative emotions, leading to the emergence of behavioral biases commonly identified in financial markets (4-5). By moving away from the assumption that economic agents are rational, we argue that emotions help understanding behaviors that fall outside the scope of rationality (6). The article is structured as follows: in section 2, we introduce definitions of emotions and focus on the links between emotions and decision-making processes. In section 3, we present a series of elements that can be used to understand the behavior of individual investors on stock markets. At the end of this presentation, we discuss the extent to which these investors could be subject to emotional influence. In the fourth section, we present our methodological approach and the selected measurement tools. In section 5, the results are presented, including the context in which the experiment took place. Section 6 will focus on the conclusions and avenues for future research.

#### 2. Literature Review

#### 2.1. Emotions and decision-making processes: what are we talking about?

Many authors have provided definitions of emotions, ranging from highly specific to more general perspectives. According to Petit, emotions are intense affective experiences with a clear cause (7). They can be seen as physiological reflexes, non-cognitive phenomena, involuntary and purely affective states, or as biologically basic and instinctive response patterns (8). Emotions are typically described by five key characteristics: a facial, vocal, or postural expression; a motivation that leads to a tendency to act; a bodily reaction; a feeling; and a cognitive evaluation (9). These traits help clarify the connections between emotions and the decision-making process. Lazarus identified three main categories of emotions: nine negative emotions (anger, fear, anxiety, guilt, shame, sadness, envy, jealousy, and disgust), four positive emotions (happiness, pride, relief, and love), and three ambiguous emotions (hope, compassion, and gratitude) (10). Additionally, six primary emotions have been identified by researchers in the field of emotions: happiness, surprise, sadness,



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anger, disgust, and fear (11). Other classifications have also been developed, including Harmon-Jones and al., which contains eight discrete emotions: anger, sadness, disgust, fear, anxiety, happiness, relaxation, and desire (12). Basic emotions are considered universal because the facial expression associated remains relatively similar across individuals (13). The valence of emotions plays a key role in investment decisions. Positive emotions favor more conservative behavior (14), as investors perceive the situation as under control and not requiring further intervention (15). On the other hand, negative emotions often lead to more impulsive choices and a decrease in patience (16). In general, the positive valence of emotions increases with returns in a bull market (17), which reinforces the confidence and optimism of individual investors (18). In contrast, negative emotions can cause investors to make less judicious decisions (19) or even to withdraw completely from the stock market, thereby contributing to a decline in returns (20).

The influence of emotions on decision-making in uncertain contexts has been extensively studied in economic and financial literature. Anger, for example, leads to optimistic judgments and promotes bold decisions (21-22). This emotion is also associated with optimistic expectations and impulsive choices (23), while reducing the perception of risks (24). Furthermore, anger stimulates confrontation (25), encourages risk-taking (26-28), and limits information processing by selectively focusing attention. However, it does not affect the speed of decision-making (29). Anxiety, on the other hand, alters perceptions of risks and gains, leading to more cautious and conservative choices (30-31). It has been associated with less risky financial decisions and relatively low returns (32-34). In contrast, sadness leads to riskier choices compared to other emotions (35). Fear generates an increased perception of risks and leads to more cautious decisions (21-23; 26-28), thus decreasing the effectiveness of individual investors' decisions (36). Finally, disgust manifests as a riskavoidance mechanism, limiting both exposure to risks and potential gains, while being linked to risk aversion (37). Regarding positive emotions such as happiness, desire, and relaxation, their impact on the decisionmaking process is more moderate (38). According to Gosling and Moutier, these emotions increase risk propensity, especially when there is a high probability of gain, particularly in loss situations (39). Positive emotions are also positively correlated with returns in a bullish market (17). Although negative emotions provoke a greater variety of reactions in uncertain situations, several studies suggest that the discomfort caused by these emotions pushes individuals to reduce their intensity and duration (40). Based on the concept of cognitive flexibility, Karboul and Zouaoui suggest that complex decisions involve an interplay between rationality and irrationality, with individuals oscillating between these two modes depending on the situation (41). Cognitive flexibility thus allows individuals to manage decision-making contexts, with emotional responses strongly influenced by cognitive evaluations of decisions (42). Damasio explained that decisions are often guided by the desire to avoid unpleasant consequences and to seek more advantageous solutions (43). Similarly, individuals seek to avoid decisions that may lead to regrets (44). Stevenson and Hicks proposed a decision-making model in which the thoughts of decision-makers play a central role, enhancing decision satisfaction and minimizing regrets when a decision is not optimal (45).



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#### 2.2. Behaviors of individual investors on the stock markets: the emotional drivers

Behavioral finance suggests that individuals' emotional states and psychological realities significantly influence financial decision-making. However, while emotional responses (which may be adaptive in specific situations) and the development of biases can sometimes be useful, they may prove inadequate in contexts where cognitive functions such as logical reasoning and planning are essential (36). As a result, investors, particularly individual investors, do not always act rationally, as they are shaped by psychological, emotional, and cognitive factors (46). Schinckus using a historical, sociological, and methodological perspective, suggested that behavioral finance could become the dominant paradigm in financial economics (47). In line with the work of Frydman and Camerer, many stock market scenarios are incompatible with the rational application of information and the risk/return trade-off (48). This raises the issue of how market participants understand and interpret information, potentially leading to incorrect risk assessments (49). Tharchen puts forward that behavioral finance offers a more comprehensive understanding of the underlying factors that contribute to both periods of euphoria and abandonment, focusing on individual and social psychology that drives excessive optimism or panic (50). However, by analyzing the theoretical foundations of traditional and behavioral finance, Benjana and Yamani argue that while behavioral finance has become a significant aspect of the field, few has been made for providing solutions to mitigate the impact of behavioral and cognitive biases on investor rationality (51).

In summary, individual investors often struggle to process the intense and rapid flow of information due to their limited cognitive capacities, and "mobilizing the criterion of optimizing rationality seems inadequate for understanding how expectations are formed in financial markets" (52). This article focuses on the influence of emotions on the decision-making processes of small investors. According to us, emotional influence is the central element that shapes behavioral and cognitive biases. Emotional influence would therefore be prior to the biases developed and the decisions induced, and thus understanding the emotions felt provides the closest opportunity to identify the emergence of biases and behaviors.

#### 3. Methodological Approach and Selected Measurement Tools

Our methodological approach draws from experimental finance and is supported by qualitative analytical tools. Below, we outline the reasons for adopting this approach.

Firstly, Ricciardi provides a timeline of academic studies in this area, categorizing each research project according to prominent trends in literature (53). This study identifies key themes, research methodologies, and shows the value of conducting research within experimental finance. For Bloomfield and Anderson, experimentation is an underutilized method in finance, despite its relevance to behavioral finance and bias analysis (54). Such an approach could address several common econometric issues, like omitted or unobserved variables. Experimentation would also extend theoretical models by relaxing some assumptions or investigating situations too complex for quantitative methods. Moreover, controlled manipulations offer the advantage of creating an environment where causal theories can be tested with high validity (55).



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In experimental finance, it is crucial to develop a scientifically validated experimental protocol. We have already proposed several frameworks for conducting financial experiments (56). Our previous experiments (57-60) have provided us with opportunities to refine our methodological approach, particularly in addressing emotional dysregulation caused by repeated decision-making (61).

Secondly, our analytical tools are based on qualitative techniques. The literature shows an increasing interest in qualitative methodologies (62), which can take different directions. From a theoretical standpoint, Mwita identifies several potential qualitative methods: interviews, participant observation, questionnaires, and written documentation (63). Specifically, in trading, the meta-analysis by Pérez-Sánchez and Delgado reveals that most qualitative studies gather data on individual investors either through oral interviews (21 out of 25 studies), written documents (3 out of 25 studies), or focus groups (1 study) (64). To strengthen the results of qualitative research, it is often advised to use multiple techniques simultaneously.

Regarding sampling, financial experimentation and the associated bias analysis often involve student populations (22, 65-66). However, in line with Dorn and Sengmueller, students who are not financially involved might tend to overplay, as the experiment could feel "playful" or even "entertaining," leading to overconfidence (67). The purpose of the reward offered was to mitigate this limit.

Our experiment was conducted over a three-day period of continuous trading, from January 27 to January 29, 2025. As put forward by Claudon and Weber, the objective was to place participants in an emotionally charged environment, close to emergency management, with the intention of shaping, reinforcing, or amplifying some psychological biases (68-69). The sample consisted of eight students—seven men and one woman—reflecting the trends in the literature, which underscores a predominant male interest in stock market activities or those with a strong entertainment aspect (70). These participants were selected from the business management program at the University of Mons (Belgium), with the criterion that they had completed a second-year financial course, ensuring a level of financial knowledge. Participants were compensated hourly for the duration of the experiment, and an additional reward was offered for the highest portfolio value at the end of the experiment, with a maximum prize of 200 euros at the winner's discretion.

The stock market platform for the experiment was ABC Bourse, which allows users to create stock market simulations for predefined periods. The students started with a virtual portfolio of 100,000 euros and were restricted to trading stocks from the CAC 40 index (the 40 largest companies by market capitalization on the French stock market). This selection was made to ensure a reasonable level of familiarity with the stocks involved. To eliminate any initial bias in the investment choices, the portfolio was entirely composed of cash at the start of the experiment. There was no restriction on the number of transactions each participant could make. The platform provided hourly rankings of participants. Each student was assigned a trading journal in which they documented the type of transaction (buy or sell), the company name, the number of shares bought or sold, the financial value of the transaction, and the updated cash balance in their portfolio following the transaction.



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At the end of the experiment, the participants were asked to write down their emotional feelings, emphasizing the most significant emotional moments or, at least, those they perceived as such. Our approach follows the work of different authors who demonstrate the importance of written documents for understanding emotions and their effects (71-72). These different written documents were analyzed through reading grids from reference articles in the field of emotions. We will take into consideration the questionnaire of discrete emotions developed by Harmon-Jones et al., and covering eight emotional positions (fear, happiness, disgust, anxiety, relaxation, desire, anger and sadness) (12). For each emotion analyzed (Table 1), we give below the details of the different scientific references used in order to translate the verbatim into an emotion:

**Table 1: Reference Material Used for Analysing Written Documents** 

| Emotion  | References  |
|--|---|
| Fear   | Frey et al. (73); Yang et al. (28); Pittig et al. (74); Visser-Keizer et al. (75); Koizumi et al. |
|  | (76).   |
| Happiness  | Deurkar et al. (77); Stevenson & Hicks (45); Kumalasari et al. (78); Yildiz & Eldeleklioglu       |
|  | (79); Bubić & Erceg (80).   |
| Disgust  | Chapman & Anderson (81); Oaten et al. (82); Han et al. (83); Schnall (84).                        |
| Anxiety Hartley & Phelps (85); Treffers et al. (86); de Visser et al. (87); Maner et al. (88); N   |   |
|  | Yang et al. (90); Sun et al. (91).  |
| Relaxation   | Anderson (92); Keinan (93); Martin & Delgado (94).  |
| Desire   | Forsythe et al. (95); Lucey & Dowling (96), Rouch & Rouch (97), Krizan & Windschitl (98).         |
| Anger Stemmler (99); Lerner & Tiedens (24), Garfinkel et al. (100). Sadness Yang et al. (2017); Raghunathan & Pham (31); Lerner et al. (102); Fischhoff & Broome |   |
|  |   |

#### 4. Results and Findings

The experiment took place over three days, during which the general stock market trend was negative, even if losses were relatively small. Data on the evolution of the CAC40 over the period are given below (Table 2), along with data on the evolution of the American and Japanese stock market indices, to give a broader view of the stock market environment.

A number of news had a negative impact on the behavior of the French stock market (and other markets) over the three days. On January 27, it was related to Deepseek, a Chinese competitor to American companies active in the Artificial Intelligence field. On January 28, the day was largely influenced by the news of Deepseek's arrival and the consequences for American companies in the Artificial Intelligence market. On January 29, LVMH annual results were announced (lower than expected). The Fed's announcement on 01.29 that it would maintain interest rates had largely been anticipated by the markets.



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Table 2: CAC 40, DJ30, NASDAQ 100 and TOPIX Performance over the Experimentation Period

| Date       | 27 Jan 2025 | 28 Jan 2025 | 29 Jan 2025 | Total   |
|------------|-------------|-------------|-------------|---------|
|            |             |             |             |         |
| CAC 40     | -0,0003     | -0,00012    | -0,0032     | -0,0036 |
| DJ 30      | 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   |

Although the losses on the index were relatively small - even if they were constant during the experiment - the participants seemed to have found the financial disappointments very hard to bear. As we will suggest after analyzing the different written documents provided by the students, there seems to have been a very personal identification with the valuation of the portfolio.

As specified in the methodological presentation, at the end of the three-day experiment, the participants were asked to write down the moments perceived as decisive and central for them, as well as all the events that had affected them, both positively and negatively. The participants were free to choose the format, length and degree of detail of their explanation. Each verbatim was analyzed by the authors according to their knowledge in the qualitative domain. The combination of the different opinions resulted in a proposal of emotion associated with the verbatim. This analysis was then completed by the contributions of the bibliographical references included in Table 1 in order to reduce the researchers' possible subjectivity.

**Table 3: Participant 1** 

| Verbatim   | Analysis                                      | Emotion |
|--|---|---------|
| On 29/01, when we noted and appreciated the fall of the        | The passage corresponds to the emotion        | Sadness |
| CAC40 and more particularly the downturn of LVMH,              | of sadness. The regret at not having sold     |         |
| which was then one of the only points of recovery in my        | at the right time and the resulting financial |         |
| portfolio. I then regretted not having sold it the day before, | loss lead to a feeling of disappointment      |         |
| when it was at its highest. This mistake then relieved my      | and frustration, which are characteristic     |         |
| total security of around €700, which I was unable to cover     | aspects of sadness.                           |         |
| afterwards.  |   |         |
| At the very beginning of the experience, having never          | The passage corresponds to the emotion        | Anxiety |
| participated in the experience or in scholarship               | of anxiety. The difficulty in getting used    |         |
| competitions, it was difficult for me to get used to the       | to the interface, the feeling of being        |         |
| interface and to apply the financial negotiation techniques.   | distanced from others, as well as the         |         |
| I also found myself in a position of inferiority compared to   | perception of not being up to the task,       |         |
| others who had already gained substantial experience in this   | generate a form of worry and nervousness      |         |
| area. In this respect, they were competent in interpreting     | in the face of the situation. Anxiety can     |         |
| financial indicators and signals, whereas I was in way over    | manifest itself here through the              |         |
| my head.   | uncertainty related to inexperience and       |         |
|  | comparison with those who seem more           |         |
|  | competent. Sadness could also be present,     |         |
|  | due to the feeling of inferiority, but the    |         |



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|  | aspect related to tension and nervousness    |            |
|--|--|------------|
|  | makes anxiety the most relevant emotion.     |            |
| Once again, when LVMH fell, I didn't know whether to sell    | The passage corresponds to the emotion       | Anger      |
| or wait. Over time, it moved in the wrong direction, which   | of anger. The expression 'what annoyed       |            |
| at first annoyed me, thinking to myself that I was never     | me at first' shows annoyance and             |            |
| lucky, but then I just accepted it.                          | frustration with the situation. The idea of  |            |
|  | 'I never had any luck' reinforces this       |            |
|  | feeling of anger, perhaps combined with a    |            |
|  | feeling of being powerless in the face of    |            |
|  | the negative turn of events. After that,     |            |
|  | there is a process of acceptance, which      |            |
|  | could also reflect a form of sadness or      |            |
|  | resignation, but the initial emotion of      |            |
|  | frustration and annoyance clearly points     |            |
|  | to anger.                                    |            |
| 'When I bought Schneider, I thought I had hit the bottom,    | The passage corresponds to the emotion       | Fear       |
| but I feared that the situation would get worse. And it did. | of fear. Fear is present at the beginning,   |            |
| So I took the risk of betting on a rise, which happened on   | when you 'feared that the situation would    |            |
| the last day, but the increase did not cover my purchase     | worsen', indicating concern about the        |            |
| price. I was reassured because during the breaks, it was a   | uncertainty of the market and a fear that    |            |
| strategy shared by some of my colleagues.                    | the purchase would be a bad decision.        |            |
|  | Even if the situation changed for the        |            |
|  | better on the last day, the fact that the    |            |
|  | increase did not cover the purchase price    |            |
|  | shows a form of persistent anxiety. There    |            |
|  | is also a feeling of relaxation or           |            |
|  | reassurance at the end, when you mention     |            |
|  | that the strategy was shared by some of      |            |
|  | your colleagues, which can induce a          |            |
|  | certain confidence in the decision.          |            |
|  | However, the main emotion seems to be        |            |
|  | fear, related to risk-taking and uncertainty |            |
|  | about how the situation will develop.        |            |
| On the last day, I sold LVMH and Schneider. The              | The passage corresponds to the emotion       | Relaxation |
| experiment was over, the market had taken a downturn, but    | of relaxation. Although the market trend     |            |
| I wasn't stressed because I knew there was nothing I could   | was negative, the fact that you no longer    |            |
| do about it. I'd made my peace with it.                      | felt stress and that you had 'made your      |            |
|  | peace' shows a state of acceptance and       |            |
|  | serenity in the face of the situation. This  |            |
|  | implies a form of letting go, where          |            |
|  | pressure and worries are released, which     |            |
|  | is typically associated with relaxation.     |            |
|  | There is also a slight aspect of sadness,    |            |
|  | related to the loss of value, but the        |            |



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|  | dominant emotion seems to be relaxation, as you have accepted the situation without trying to change anything about it.  |         |
|--|--|---------|
| At the end of the first day of my repurchase of LVMH. The next day, the share was performing well. I told myself that I was starting to understand, and I wanted to continue with the other investments. | The passage corresponds to the emotion of desire. The fact that you 'want it to continue for the other investments' shows a desire for positive change and an aspiration to maintain this momentum. In addition, the feeling of beginning to 'understand' the situation suggests a certain excitement and positive anticipation of future opportunities. | Desire  |
| None of my goals have been achieved, disappointment.   | The passage corresponds to the emotion of sadness. The fact that 'none of my goals have been achieved' and that this has led to feel 'disappointment' reflects a sense of loss, frustration and regret, emotions typically associated with sadness.  | Sadness |

## Table 4: Participant 2

| Tubic 4. Lutticipuit 2  |   |         |  |
|---|---|---------|--|
| Verbatim  | Analysis                                      | Emotion |  |
| On the third day, the CAC40 was bearish, I couldn't sell the        | The passage corresponds to the emotion        | Desire  |  |
| market, so I remained hopeful that the luxury would return to       | of desire. Staying in the hope that luxury    |         |  |
| my entry points.  | will return to its entry points shows a       |         |  |
|   | desire for improvement, a return to values    |         |  |
|   | and a favorable evolution of the market.      |         |  |
|   | This emotion of waiting for a positive        |         |  |
|   | turnaround translates into a desire for the   |         |  |
|   | situation to improve.                         |         |  |
| On the third day, the market did not rise despite my hopes. I felt  | The passage corresponds to the emotion        | Disgust |  |
| a little disgusted, but it's logical, the price was not showing any | of disgust. Feeling 'a little disgust' about  |         |  |
| bullish signs, there was nothing to hope for.                       | the situation, especially after hopes have    |         |  |
|   | not been realized and the market shows no     |         |  |
|   | sign of recovery, indicates a form of         |         |  |
|   | disappointment and rejection of the lack      |         |  |
|   | of effectiveness in the situation. The        |         |  |
|   | disgust here reflects a form of frustration   |         |  |
|   | at the lack of positive results.              |         |  |
| On the third day, in the morning, my analysis and the indicators    | The passage relates to the emotion of         | Anger   |  |
| suggested I sell at 5pm, but that wasn't within the hours of the    | anger. The frustration felt in the situation, |         |  |
| experiment. It was frustrating.                                     | where the analysis and indicators told you    |         |  |
|   | to sell, but this did not correspond to the   |         |  |



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|   | hours of the experiment, creates a feeling of annoyance. This feeling of not being able to act according to what you thought was the best decision is characteristic of anger or irritation faced with an external constraint  |           |
|---|--|-----------|
| On the third day, in the afternoon, the market wasn't going up.  It was realistic not to see ourselves going up.  | The passage relates the emotion of sadness. The fact that the market was not recovering and that you expressed that it was 'realistic not to see it recovering' indicates a feeling of resignation in the face of the situation, accompanied by a form of disappointment. The awareness that the situation is not likely to improve generates a form of sadness. | Sadness   |
| On the second day, my portfolio was performing well, so my configurations were quite good. I followed the plan, and at the end of the day, once I got home, I saw that I was in first place. I was happy. | The passage relates the emotion of happiness. The portfolio is performing positively, that the plan has been followed, and that you discover that being in first position at the end of the day generates a feeling of satisfaction, which is characteristic of happiness.   | Happiness |

## Table 5: Participant 3

| Tuble of Turbelpunt o   |   |         |  |
|---|---|---------|--|
| Verbatim  | Analysis                                      | Emotion |  |
| I didn't think the announcement of LVMH's results would result      | The passage reflects the emotion of           | Sadness |  |
| in such a fall. I was a little disappointed because it was the only | sadness. The disappointment felt after the    |         |  |
| real risky move that had been planned in advance.                   | announcement of LVMH's results and the        |         |  |
|   | realization that the risky move did not       |         |  |
|   | have the desired outcome reflect a feeling    |         |  |
|   | of frustration and disappointment, which      |         |  |
|   | are characteristic of sadness.                |         |  |
|   |   |         |  |
| The fact that the market remains in a negative trend on the last    | The passage corresponds to the emotion        | Anxiety |  |
| day.  | of anxiety. The market remaining in a         |         |  |
|   | negative trend generates a form of            |         |  |
|   | uncertainty and concern about the future,     |         |  |
|   | which is typical of anxiety. The lack of      |         |  |
|   | positive movement in the market creates a     |         |  |
|   | stressful and uncertain situation.            |         |  |
| When Michelin fell quickly after buying it.                         | The passage corresponds to the emotion        | Fear    |  |
|   | of fear. The rapid fall of Michelin after the |         |  |
|   | purchase suggests immediate concern and       |         |  |
|   | fear about the negative evolution of your     |         |  |



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|  | investment. This fear is related to market uncertainty and the possibility that the situation will worsen further.  |         |
|--|---|---------|
| I didn't anticipate anything, I mainly suffered by paying less attention to the shares held. | The passage corresponds to sadness. The fact of 'suffering' the situation and 'paying less attention' to the shares held indicates a feeling of regret and disappointment with how things have been managed. This lack of planning and the resulting negative impact are characteristic of sadness. | Sadness |

## **Table 6: Participant 4**

| Verbatim  | Analysis                                    | Emotion   |
|---|---|-----------|
| On Monday afternoon, I had anticipated an increase in more        | The passage reflects anger. The fact that   | Anger     |
| local stocks, but I had invested too early, so I ended the day in | you anticipated the increase in shares but  |           |
| the red and missed out on opportunities.                          | invested too early, resulting in a negative |           |
|   | end to the day and missed opportunities,    |           |
|   | reflects a feeling of frustration and       |           |
|   | annoyance. This anger is related to the     |           |
|   | perceived error and the inability to take   |           |
|   | advantage of the situation as planned.      |           |
| On Wednesday, stocks related to luxury plunged. I had a feeling   | The passage reflects anger. The fact of     | Anger     |
| it was going to happen, but I had forgotten that Kering was in    | 'feeling' that the luxury-related shares    |           |
| my portfolio.   | were going to drop but having 'forgotten'   |           |
|   | that Kering was in the portfolio, can       |           |
|   | generate a feeling of irritation or         |           |
|   | frustration at this negligence or error of  |           |
|   | judgement. This shows a form of             |           |
|   | annoyance in a situation where you feel     |           |
|   | responsible for the oversight and the       |           |
|   | resulting loss.                             |           |
| On Tuesday, I started at -€400 and ended the day at €150,         | The passage corresponds to the emotion      | Happiness |
| having reached highs of €600.                                     | of happiness. Going from a loss of €400     |           |
|   | to a gain of €150, with peaks at €600,      |           |
|   | generates a feeling of satisfaction and     |           |
|   | happiness related to this significant       |           |
|   | improvement in the situation. This rapid    |           |
|   | positive change is typically associated     |           |
|   | with happiness.                             |           |

## **Table 7: Participant 5**

|   | -   |         |
|---|---|---------|
| Verbatim  | Analysis                                    | Emotion |
| On day 2, I wanted to invest again in LVMH as a kind of safety  | The passage corresponds to the emotion      | Disgust |
| investment while waiting for day 3. I hadn't really studied the | of disgust. The fact of feeling 'disgusted' |         |



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| different information about the company, so I was very surprised when it crashed on day 3 in the morning. I was disgusted because I was expecting a small profit/stagnation. I could have done better on this one.   | after having invested in LVMH without having properly studied the company and having been surprised by the crash in the morning shows a rejection of and frustration with a bad decision. This feeling of disgust is reinforced by the fact that you expected a low profit or stagnation, but that the situation took a much more negative turn.   |         |
|--|--|---------|
| Day 2, early in the day, when Schneider's share price was in free fall. As a result, I increased the gap with the others even more, even though I was determined to do better. Once again, I was disgusted, but this time I told myself it was because of the market and that I couldn't have anticipated such a fall. | The passage relates to disgust. The feeling of 'disgust' is expressed several times, particularly because of the free fall in Schneider's share price and the growing gap with the others. Even if it was due to the market and that it could not have been anticipated, the dominant emotion remains disgust, related to the frustration of not having done better despite the determination. | Disgust |
| Still suffering from the fall of Schneider, I was a little lost. I tried to recover as best I could. I knew that when the American market opened, I was going to lose even more.   | The passage corresponds to the emotion of anxiety. Feeling 'a little lost' and knowing that when the American market opened, you were going to 'lose even more' generated a form of worry and stress. The uncertainty about how the situation would develop, combined with the prospect of further losses, is typical of anxiety.  | Anxiety |
| Day 3 from the start, when LVMH fell. I had no intention of doing the same as Schneider and dropping back to 7%. So I sold it very quickly, even if it meant losing a lot at that moment.  | The passage relates to fear. The fear of reliving a situation similar to that of Schneider, where 7% were lost, prompted to take quick action and withdraw LVMH, even if it meant accepting a significant loss. This reaction shows a fear of losing more and a desire to avoid a situation perceived as too risky.  | Fear    |
| On day 3, when I saw LVMH fall sharply, Schneider rise sharply and that, despite the rise, I was still in the red, I thought that getting back into the green would be almost impossible.  | The passage relates to sadness. Seeing LVMH fall sharply and Schneider rise, while remaining in the red despite this rise, generates a feeling of despair and disappointment. The thought that returning to positive territory would be 'almost impossible' reflects a form of   | Sadness |



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|  | resignation and frustration, characteristic of sadness.   |           |
|--|---|-----------|
| I felt that Schneider was going to improve and that he would experience a big positive change. I had even written it down in my notes on the first day. But I wasn't expecting such a strong reaction. | The passage reflects happiness. The certainty that Schneider would develop positively, and the anticipation of a big change, shows a feeling of optimism and excitement. The positive 'overreaction' of the market even exceeds expectations, which probably generates satisfaction and happiness at the success of the prediction. | Happiness |
| When Schneider went up to $+5\%$ , I was glad that, in the end, my predictions were right.   | The passage corresponds to happiness. The predictions turned out to be the right ones, especially when Schneider reached +5%, shows a feeling of satisfaction, happiness and success. This reflects a positive emotion related to the confirmation of the expectations.   | Happiness |

## Table 8: Participant 6

| Verbatim  | Articipant 6<br>Analysis                      | Emotion |
|---|---|---------|
|   | -   |         |
| During some periods, when the market was generally bearish,         | The passage corresponds to anger. The         | Anger   |
| and my assets were too. I felt a little frustration, which grew as  | growing frustration at the bearish            |         |
| the situation continued, or even worsened. I also tended to want    | situation, combined with the desire to        |         |
| to reinvest in it, convincing myself that it would cover my losses  | reinvest to offset losses despite the lack of |         |
| even without any real reliable indicator that the shares would      | reliable indicators, suggests a feeling of    |         |
| start to rise again.  | irritation. This frustration related to       |         |
|   | uncertainty and the inability to change the   |         |
|   | situation, as well as the desire to take      |         |
|   | impulsive measures, is typically              |         |
|   | associated with anger.                        |         |
| On the second day, at the opening, the 900 euros I started with     | The passage reflects the emotion of           | Sadness |
| on the first day turned into a loss, which was completely out of    | sadness. The disappointment of seeing         |         |
| my control. I was really disappointed to see my efforts from the    | efforts from the first day turn into losses,  |         |
| first day go to such a low level. I felt like I had done it all for | the feeling of having done it all 'for        |         |
| nothing. I also regretted not having sold the day before.           | nothing' and the regret of not having sold    |         |
|   | the day before reflecting emotions of         |         |
|   | frustration, disillusionment and loss.        |         |
| During an overall fall, one of my stocks was badly affected.        | The passage corresponds to anxiety.           | Anxiety |
| However, seeing that the indicators seemed to be indicating a       | Although the indicators point to a            |         |
| recovery, I didn't sell, even though my intuition didn't trust it.  | recovery, the uncertainty generated by        |         |
| - ·   | your lack of instinctive confidence creates   |         |
|   | a feeling of nervousness and stress. The      |         |
|   | anxiety here results from the tension         |         |
|   | between the decision not to sell despite      |         |



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|  | internal doubts and the uncertainty about    |            |
|--|--|------------|
|  | the future evolution of the market.          |            |
| The loss was so significant and persistent that, rather than       | The passage corresponds to relaxation.       | Relaxation |
| getting discouraged, we and other participants turned the          | The idea of 'making fun of the situation'    |            |
| situation into a joke, which encouraged us to continue investing   | despite the significant and persistent loss  |            |
| in it.   | suggests a relaxed approach and an           |            |
|  | attempt to minimize emotional tension in     |            |
|  | the face of difficulty. This attitude of     |            |
|  | putting the situation into perspective,      |            |
|  | rather than allowing oneself to be           |            |
|  | overcome by frustration or anger, is         |            |
|  | typical of relaxation, allowing one to       |            |
|  | continue to invest without being             |            |
|  | negatively affected.                         |            |
| I felt a kind of euphoria when all the indicators were green,      | The passage corresponds to happiness.        | Happiness  |
| making me invest a little more impulsively.                        | The euphoria felt when all the indicators    |            |
|  | were green reflects a feeling of             |            |
|  | excitement and happiness, associated         |            |
|  | with a positive situation and optimism.      |            |
|  | This emotion is reinforced by investing      |            |
|  | impulsively, motivated by the feeling of     |            |
|  | happiness and enthusiasm generated by        |            |
|  | the good market signals.                     |            |
| Although it was often a matter of luck, I always felt a feeling of | The passage corresponds to happiness.        | Happiness  |
| pride, often interpreting the situation as controlled from the     | The feeling of pride, even while             |            |
| start.   | recognizing that it can often be due to      |            |
|  | luck, reflects a feeling of satisfaction and |            |
|  | contentment with the ability to interpret    |            |
|  | the situation and feel in control.           |            |

## Table 9: Participant 7

| Verbatim  | Analysis                                    | Emotion |
|---|---|---------|
| On Tuesday afternoon, around 3pm, I was surprised by the            | The passage relates to the emotion of fear. | Fear    |
| correction on Schneider, when I thought the floor had been          | The surprise at Schneider's correction and  |         |
| reached. From that moment on, I no longer made rational             | the fact that you no longer made rational   |         |
| decisions: everything was based on impulse.                         | decisions, but that everything became       |         |
|   | based on impulse, suggest an emotional      |         |
|   | reaction of panic or uncertainty. This fear |         |
|   | probably stems from the feeling of loss of  |         |
|   | control in the face of an unpredictable and |         |
|   | stressful situation.                        |         |
| When the market opened on Wednesday at 9am, I thought I had         | The passage corresponds to fear. The        | Fear    |
| hit rock bottom, but no: I completely lost it as soon as it opened. | feeling of 'drowning' as soon as the        |         |
| I was surprised, and my impulsiveness only increased.               | market opened and the surprise at the       |         |



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| On 29/01, after selling everything at a loss everywhere, I didn't know what to do. I felt a sense of feeling powerless in the face of the situation. It didn't matter what decision I made because it seemed like a bad one.                  | situation, as well as the increase in impulsivity, show a state of panic and anxiety. Fear is clearly present here, driven by the fear of the situation worsening and the inability to anticipate how the market will evolve.  The passage corresponds to the emotion of sadness. The feeling of helplessness in the face of the situation, as well as the uncertainty and the perception that all decisions seemed wrong, reflect a form of resignation and despair. This emotion of | Sadness   |
|---|---|-----------|
| After buying the same share (Schneider) for the third time because I thought the lower limit had been reached, I began to have increased doubts about Schneider's ability to recover very quickly. I felt like I had completely lost control. | sadness stems from frustration and the loss of control over the situation.  The passage corresponds to the emotion of anxiety. The author expresses doubts and a loss of control in the face of the investment situation, which is typical of anxiety. The uncertainty as to the company's ability to recover quickly and the feeling of loss of control create tension and worry, which are characteristic of anxiety.   | Anxiety   |
| On Wednesday afternoon, after an overall loss of more than €2000 and a falling stock market, I knew it was over for me and that I would have to do something to overcome this failure.  | The passage corresponds to the emotion of sadness. The author expresses a feeling of resignation and failure in the face of a significant financial loss, which indicates a state of discouragement.  | Sadness   |
| On Tuesday, I anticipated an increase in Schneider's share price. This occurred a few dozen minutes later. I was very happy, positive and confident about the rest of the experience.   | The passage corresponds to happiness. The author expresses a feeling of satisfaction after correctly anticipating the evolution of the stock market, feeling positive and confident about the future.   | Happiness |
| When I was third in the rankings with very volatile positives, I had hopes of moving up quickly to reach first place. However, this drove me to take even more risks.   | The passage corresponds to desire. The author expresses the hope of quickly moving up the rankings and reaching first place, which reflects a strong desire to succeed and achieve a goal.  | Desire    |

## **Table 10: Participant 8**

| Verbatim  | Analysis                                   | Emotion |
|---|--|---------|
| I invested in expensive shares compared to the first day. I       | The passage corresponds to fear. The       | Fear    |
| thought they would go up sharply, like the day before, but it was | author describes a situation in which he   |         |
|   | took a risk thinking that the shares would |         |



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| a big mistake because they fell sharply. Given the quantities purchased, I suffered heavy losses.  | go up, but this led to a sharp fall and significant losses. The feeling of regret and anxiety about the negative consequences of this decision is typical of fear, especially the fear of financial loss.   |         |
|--|---|---------|
| When I wanted to buy specific securities, I hesitated in the hope that they would fall, because I thought they were too expensive. Unfortunately for me, they quickly increased, and it was too late to invest.  | The passage corresponds to anger. The author expresses a feeling of frustration and regret after hesitating to invest, believing that prices would fall, but ultimately seeing the securities increase. This situation of lost opportunity can lead to anger for oneself for not having acted sooner. | Anger   |
| Through intuition and analysis, I realized that it was better to sell Teleperformance, Vinci, Stellantis and Axa, given their high volatility, both up and down.   | The passage corresponds to anxiety. The author makes the decision to sell shares because of their high volatility, which suggests a concern about risks and a desire to reduce uncertainty. Anxiety is related to the management of uncertainty and risk, which seems to be the case.                 | Anxiety |
| It was when I invested at the wrong time in LVMH, in large quantities, as well as in L'Oréal, thinking that the situation would be similar to the first day. Unfortunately, these investments caused me a big loss, even though they were my main source of earnings at the beginning. | The passage corresponds to sadness. The author expresses a sense of regret and disappointment after investing at the wrong time and suffering a large loss.   | Sadness |
| The same case as for LVMH and L'Oréal. I did the same thing with Hermès, but the quantities were not significant, so my loss was slight, whereas I thought the stock was going to perform positively.  | The passage best corresponds to the emotion of disgust. The author seems to feel a sense of disappointment and discontent with his investment choices, especially since he had positive expectations that were not realized, even if the loss was less significant.                                   | Disgust |
| The rise in the share prices of LVMH and L'Oréal at the right time. I couldn't wait to sell them to put my profit aside.   | The passage corresponds to desire. The author expresses a desire to sell his shares quickly in order to cash in his profits, which reflects a strong desire to capitalize on the rise in prices and secure his profits.   | Desire  |



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**Table 11: Summary of Emotions** 

| Emotion  | Fear   | Desire | Disgust | Anger  | Anxiety | Relaxation | Happiness | Sadness | Total |
|----------|--------|--------|---------|--------|---------|------------|-----------|---------|-------|
|          |        |        |         |        |         |            |           |         |       |
| 1        | 1      | 1      |         | 1      | 1       | 1          |           | 2       | 7     |
| 2        |        | 1      | 1       | 1      |         |            | 1         | 1       | 5     |
| 3        | 1      |        |         |        | 1       |            |           | 2       | 4     |
| 4        |        |        |         | 2      |         |            | 1         |         | 3     |
| 5        | 1      |        | 2       |        | 1       |            | 2         | 1       | 7     |
| 6        |        |        |         | 1      | 1       | 1          | 2         | 1       | 6     |
| 7        | 2      | 1      |         |        | 1       |            | 1         | 2       | 7     |
| 8        | 1      | 1      | 1       | 1      | 1       |            |           | 1       | 6     |
| Total    | 6      | 4      | 4       | 6      | 6       | 2          | 7         | 10      | 45    |
| Percent. | 13,33% | 9%     | 9%      | 13,33% | 13,33%  | 4,44%      | 15,55%    | 22,22%  |       |

Reading the comments, although in theory this is not the case, we realized that relaxation was comparable to a negative emotion; in fact, the participants told us that they had reached such a level of sadness and disgust that they preferred to relax and give up any attempt to cut their losses. Overall, our results show a strong prevalence of negative emotions (75% of emotions had a negative meaning). The explanations lie in the negative configuration of the market during the three days, even if the bearish movements were on a small scale. We also observed a very personal appropriation of a portfolio which was, however, only virtual. The participants were emotionally very affected by the losses incurred and, even though a reward was promised at the end of the experiment to the best performing portfolio, they did not try to improve the situation by trading aggressively during the last day. A kind of discouragement and abandonment has developed in the audience, which is almost perceptible and has led to a lack of involvement in the experiment. In a bear market, the question is no longer about being the best, but about being less bad than the others. In other words, the reward would be achieved through a passive strategy, since the risks taken seem to result in financial losses. This behavior also helps to limit regrets. The accumulation of negative experiences does indeed cause emotional discomfort and withdrawal (106). This last observation is reinforced by the number of transactions made throughout the experiment (Table 11): we observe a significant drop in transactions on the last day (the number of transactions on the third day represents less than 20% of the total transactions), when three participants made almost no more financial movements.



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**Table 12: Trading Strategy during the Experimentation** 

|       | $\frac{\text{Total}}{\text{D}^1 \text{1}}$ | $\mathbf{B}^2$ | <u>S</u> <sup>3</sup> | Total<br>D2 | <u>B</u> | <u>S</u> | Total D3 | <u>B</u> | <u>S</u> | <u>Total</u> | <u>B</u> | <u>S</u> |
|-------|--|----------------|-----------------------|-------------|----------|----------|----------|----------|----------|--------------|----------|----------|
| 1     | 21   | 12             | 9                     | 18          | 15       | 3        | 8        | 5        | 3        | 47           | 32       | 15       |
| 2     | 28   | 17             | 11                    | 8           | 4        | 4        | 7        | 3        | 4        | 43           | 24       | 19       |
| 3     | 17   | 15             | 2                     | 4           | 1        | 3        | 2        | 1        | 1        | 23           | 17       | 6        |
| 4     | 49   | 28             | 21                    | 14          | 10       | 4        | 12       | 9        | 3        | 75           | 47       | 28       |
| 5     | 17   | 11             | 6                     | 20          | 10       | 10       | 16       | 7        | 9        | 53           | 28       | 25       |
| 6     | 13   | 10             | 3                     | 2           | 1        | 1        | 0        | 0        | 0        | 15           | 11       | 4        |
| 7     | 13   | 9              | 4                     | 9           | 6        | 3        | 1        | 0        | 1        | 23           | 15       | 8        |
| 8     | 11   | 10             | 1                     | 9           | 3        | 6        | 16       | 8        | 8        | 36           | 21       | 15       |
| Total | 169  | 112            | 57                    | 84          | 50       | 34       | 62       | 33       | 29       | 315          | 195      | 120      |

#### 5. Conclusions and Avenues for Future Research

The most recent financial theories stress the importance of psychological and emotional factors in understanding investor behavior. However, psychological and financial perspectives require the use of different tools that are often used by people with very different intellectual backgrounds. This article aims to bring together different schools of thought by using qualitative tools to explore the emotional patterns of individual investors on the stock markets. Our results demonstrate the influence of emotions that are defined as negative on the development of a feeling of abandonment and withdrawal, even though the financial portfolios are virtual. According to us, understanding how stock markets work involves the use of tools that do not leave out individuals' personality traits and their emotional feelings, as is often the case in quantitative studies. By increasing the size of the sample and the duration of the experiment, the results could be more easily generalized. If the emotional paralysis and abandonment phenomena were to be more widely confirmed, this would imply that emotions must be taken into consideration in order to understand the speculative bubbles' processes of development and explosion.

In any case, we could combine the recommended protocol and the analysis tools with other ones, namely quantitative methodologies. Another approach would be to use multiple qualitative methods, such as semi-structured interviews and focus groups. Finally, collecting written reports as the experiment progresses would reduce the risk of forgetting the emotions experienced.

<sup>&</sup>lt;sup>1</sup> Day

<sup>&</sup>lt;sup>2</sup> Buy

<sup>&</sup>lt;sup>3</sup> Sell



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In our opinion, this work constitutes a first step that could lead, for example, to a better understanding of biases and their effects. Once researchers accept the relevance of an interpretivist and inductive approach to the analysis of stock markets, new research avenues are opened up.

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