



# Saint- Joseph University Economic Science Faculty Master 2 – 2022 -2023

### Impact of Behavioral Finance on Investment Decisions in The Financial Market – A study on Lebanese Investors

Thesis to obtain Master's in Economics.

option:

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## Abstract

Throughout recent years, behavioral finance has grown huge attention through examining the impact of psychological biases on investment decisions. This research will plunge deeper into investors' behavior and how it affects the market, thoroughly discussing empirical and theoretical studies.

Further to many markets' failures, bubbles, and crises and after analyzing and questioning the market, we wonder what the buyer knew that the seller did not and vice versa. Indeed, it appears that an illusion of economic competence is responsible for building a large industry. Thus, it is not always that the purchaser knows what the seller doesn't know, nor are they mutually aware. Rather, it is a combination of factors such as herd behavior, overreactions, and emotions which may be the cause of market failures, bubbles, or crises. However, we seek to find out more about the factors that have driven investor behavior and its consequences for market outcomes through an analysis of different behavioral biases.

The theoretical basis and models that explain the impact of behavioral finance on investment decisions have been identified and analyzed in this study through a comprehensive literature review. Prospect Theory, Overconfidence Bias Model, Cognitive Dissonance Theory, and Self-Attribution Bias are among the prominent theories explored, revealing how these biases affect risk perception, decision-making processes, and portfolio choices.

Moreover, we will profoundly discuss the practical implications of behavioral finance for investment performance. These findings show that a large confidence deficit might result in suboptimal investment strategies, e.g., excessive trading, higher portfolio turnover, and lack of diversification. In addition, market inefficiencies and increased volatility can emerge as a result of herd behavior influenced by various social factors.

This study provides substantial insights into the role of psychological biases in investment decision-making, thanks to its inclusion of views from behavioral finance theory and various experimental studies. Attention is drawn to the implications of behavioral financing for individual

investors, financial professionals, and market regulators to highlight the importance of investor education and awareness in mitigating the adverse consequences of behavioral biases.

In a nutshell, this research demonstrates the importance of incorporating behavioral finance principles into investment strategies given its limitations in conventional financial theory. With the recognition and account taken of the effects of behavioral biases, investors and market participants are in a better position to make smarter choices that lead to increased market efficiency and improved investment results.

There are several reasons that this research topic is central and relevant to the impact of behavioral finance on financial market investment decisions. For instance, behavioral finance provides an understanding of the variables that affect investors' behavior and decision-making through behavioral finance. Through analyzing various biases, brain constraints, and behavioral patterns affecting investors, academics can learn why people are choosing certain investments. It is necessary to fully understand this concept to develop strategies and actions that will allow investors to make smarter, more rational decisions.

## **Quotes:**

"How could have been so mistaken as to have trusted the experts?" – John F. Kennedy after the Bay of Pigs fiasco

"Behavioral Finance is not a branch of standard finance: it is its replacement with a better model of humanity" – Meir Statman

## Introduction

In today's rapidly evolving and complex financial landscape, investment decisions play a pivotal role in determining the economic well-being of individuals, organizations, and even nations. Traditional finance theories have long assumed that investors are rational beings who make unbiased decisions based on all available information. However, the field of behavioral finance challenges this assumption by incorporating insights from psychology, sociology, and other social sciences to understand and explain the numerous biases and cognitive errors that influence human decision-making. The impact of behavioral finance on investment decisions has become an increasingly important and widely researched area of study, as it seeks to bridge the gap between rationality and real-world decision-making.

When observing the market, one starts to ask questions, like when to sell a stock, who buys it, what made one person buy and the other sell, and what the seller thinks they knew that the buyer did not. We will be focusing on behavioral finance and its components in this study, such as the Standard Finance that gave rise to behavioral finance. The market is efficient, according to many economists who think investors are wise and have all the information at their disposal. As Bordalo et al. (2020a) said "Individual forecast errors are systematically predictable from forecast revisions." In this context, it is concluded that human nature will always prevail over market rationality, as investor behavior, such as overreacting to information is the norm for individual forecast data. We will be having several market failures like the bubbles and shocks arising out of human overreactions to some external or internally occurring events.

Every day, billions of shares are traded, with numerous buyers and sellers of each stock. Over 100 million shares of a single stock frequently trade hands in a single day. While most of the buyers and sellers are aware of having the same information, they typically swap stocks because they have differing opinions. While sellers believe the price is too high and is likely to go down, buyers think it is too low and likely to increase. However, both the buyers and sellers believe the current price is incorrect, giving them the impression that they are more knowledgeable than the market about what the price should be. Most of them believe it is an illusion, and it is how we talk about the role of financial behavior in investment decisions. In this matter, by examining empirical evidence, historical market evidence, and behavioral models, we gain valuable insights about behavioral biases.

This thesis aims to delve into the multifaceted dimensions of behavioral finance and explore how various cognitive biases, emotional factors, and social influences shape investment choices. The objective of this research is to analyze the effects of behavioral finance on investment decisionmaking, with a focus on both individual and institutional investors. By understanding the underlying psychological and behavioral mechanisms that drive investment behavior, we can gain valuable insights into why investors deviate from rationality, make suboptimal decisions, and, ultimately, how these decisions impact financial markets. To achieve our goal, this thesis will adopt a comprehensive and interdisciplinary approach, drawing upon a wide range of theoretical frameworks, empirical studies, and real-world examples. The analysis will encompass various aspects of behavioral finance, including prospect theory, overconfidence, loss aversion, herding behavior, mental accounting, anchoring, and framing effects, among others. By examining the challenges and opportunities that arise from behavioral biases, we can identify potential avenues for improving investment decision-making processes and outcomes. The findings of this thesis will not only contribute to the academic understanding of behavioral finance but also offer valuable insights and recommendations for practitioners, policymakers, and investors alike. Understanding the impact of behavioral finance on investment decisions has the potential to enhance risk management practices, improve market efficiency, and enable more informed decision-making in a rapidly changing financial landscape. This thesis aims to provide a comprehensive exploration of the impact of behavioral finance on investment decisions. By analyzing the intricate interplay between human behavior, cognitive biases, and financial choices, we can gain a deeper understanding of the factors that shape investment decisions and their implications for individuals, organizations, and the broader financial system. Furthermore, this research will address the limitations of traditional finance theories by highlighting the significance of incorporating behavioral factors into investment analysis. While traditional finance assumes that market participants are perfectly rational and always act in their best interest, behavioral finance acknowledges that investors are prone to systematic biases and irrational behaviors that can lead to suboptimal investment outcomes.

This study aims to answer the principal question of the research and several other questions because it is crucial to a well-rounded picture.

The main questions are: What is behavioral finance? What are the main behavioral biases that can influence investors' decision-making? What is the effect of behavioral finance on individual and institutional investors? How did investor behavior affect the market during crises? What is the impact of the behavioral finance on the market outcomes?

We will then move forward to other important questions to be more practical and understand the market and the investors' reactions. So, the primordial research question will be:

What is the impact of behavioral finance on investment decisions in the financial markets?

In the first part of the paper, we will discuss the behavioral biases, how it criticized the Efficient Market Hypothesis, and its effect on the market, then we are going to see the impact of behavioral finance on the Lebanese investors' decision making process through the case study that we did.

## **Part I: Literature Review**

### Chapter 1: Overview of the Efficient Market Hypothesis:

#### Efficient Market Hypothesis

The Efficient Market Hypothesis (EMH) has been one of the most important paradigms and the most criticized one too. The Efficient market as per Fama (1970) is defined as market where all security prices reflect all available information and therefore all financial markets are efficient. In this matter, Fama expands that it would be impossible for this trading system that is based on current available information for everyone quality, to have excessive return consistently. The Efficient market hypothesis became sensational in the 1970, many researchers tried to prove this hypothesis in doing many empirical and theorical studies. The main arguments for the EMH is that:

- Investors are rational and value securities rationally.
- Their trades are random and cancel each other without affecting the prices.
- Rational arbitrageurs eliminate the influence of irrational investors in the markets.

In addition, the empirical evidence from 1970 shows that any news about securities should reflect the movement of the price, and prices should only be affected by new information, therefore the prices are mirrored by the available information in the market in any form. To note that there are three forms of market efficiency proposed by Fama:

- Weak form efficiency: Where the current prices reflect the historical information of the share prices. In the weak form, it is impossible to make abnormal or excessive gains and could be used to predict future trading.
- Semi-Strong form efficiency: where the present stock prices mirror the information available to the public. This publicly accessible information has the present and past information to guard against excessive profit.
- Strong form efficiency: where the current stock price mirrors both private and public information. In this form, the private information gives investors deep knowledge about the stock process but doesn't allow excess or surreal gains on this stock.

The optimal portfolio diversification is explained by the portfolio theory as mentioned Anu (2019) however the assumptions behind this theory are unrealistic due to the fact that investors' investment decisions are based on preferences and beliefs. Various steps are present in the optimal portfolio, the first step is the "Investment Strategy" where they use fundamental analysis that affect the stock prices according to Shleifer and Summers (1990), this also means using financial statements that affect the price or technical analysis which mirrors the past stocks. Moreover, Shefrin and Statsman argued that investors with risk appetite are based on this analysis, their choice of buying and selling a stock works accordingly.

But the main argument against the EMH is that investors are not rational, and are subject to many biases, emotions, and reactions.

The purpose of this research is to talk about the Behavioral finance in details as this factor criticized the Efficient Market Hypothesis by Fama Eugene.

## Chapter 2: Behavioral biases in financial markets

### Part 1: Definition of behavioral finance

Behavioral finance is a remarkable and a unique subfield of finance that blends psychology and economics to better understand how people and groups make financial decisions. It recognizes that investors often act irrationally and can be swayed by psychological biases or emotions. As a result, their investment decisions may be impacted, which in turn may affect the financial markets.

The purpose of behavioral finance is to explain why people make certain financial decisions and how they affect market outcomes. When it comes to financial decision-making, behavioral finance plays a critical role in providing a better understanding of investor behavior in real-world situations.

Behavioral finance recognizes that investors are often influenced by psychological biases such as overconfidence, loss aversion, and herd behavior, unlike traditional finance theories that assume that investors are rational and make decisions based on available information and rational analysis of risks and rewards. Leveraging these biases will allow behavioral finance to provide a much clearer, more complex view of financial decision-making and its impact on markets.

Understanding behavioral finance, by recognizing the psychological biases that can affect judgment, is a way to help investors and financial professionals make better decisions. In this way, it can contribute to policy decisions by providing information about the possible effects of investor behavior on market outcomes.

### Part 2: Types of behavioral finance:

For the purpose of explaining how people decide to make their financial decisions, behavioral finance covers a variety of theories and concepts such as psychology, sociology, and economics. In the following we will discuss some of the most important behavioral finance theories and concepts.

Heuristics is the first theme of behavioral finance, and many factors, such as overconfidence, representativeness, and gambler's fallacy, are included in this theme. We are going to plunge into each one of them.

Theme	Behavioral factors
	Overconfidence
	Representativeness
Heuristic	Gamblers Fallacy
	Framing
	Lossaversion
Prospect Theory	Mental Accounting
	RegretAversion
	OptimismBias
Emotions	Illusion of control
	Overreaction to price changes
Market impact	Past trend of stocks
Herding	Herding

Table 1: Themes of Investors behavior

Source: Waweru et al (2008), Kahneman (2011) and Baker and Nofsinger (2010).

#### A. Heuristic:

The heuristics are quick fixes and time-saving techniques that have been deployed to quickly arrive at conclusions, particularly when investors' expectations are ambiguous or unpredictable (Baker and Nofsinger, 2010). Heuristics are applicable in various ways, but Waweru, Munyoki and Uliana (2008) discussed that they lead to poor judgement when misused. However, Kahneman (2011) argued that heuristics cause people to forget reality, thereby avoiding resolving the fundamental problem by relying on a "rule of thumb" through trial and error.

1. Overconfidence

In the field of cognitive psychology, it has been shown that when people are confronted with uncertainty they deviate in a systematic way from rationality. Overconfidence in some investment choices and overestimates about future projections are some of the most widespread biases. In particular, according to Daniel Kahneman, investors have a particularly high propensity for overconfidence.

The tendency of investors to overestimate their capabilities or knowledge is referred to as overconfidence bias. Studies have shown that overconfident investors may trade more frequently, take on more risk, and have lower returns than their less overconfident peers (Barber and Odean, 2001). Despite of our belief that taking more risks will lead to higher profits, investors tend to overvalue assets, leading to bubbles and subsequent crashes in financial markets.

Actually, this bias makes the investor think he has more knowledge or expertise than he really does and that leads him to make risky investment decisions. Some examples of overconfidence in action are demonstrated here:

Day trading: Many investors think they'll be able to beat the market by day trading, investing and selling securities regularly. However, studies have shown that in the long run, day traders do not perform well on the markets due to their overconfidence leading them to make risky trades and eventually fail.

Stock picking: Investors can also be convinced that choosing individual stocks that will outperform the market due to overconfidence. However, studies show that it is impossible to systematically outperform the market for even experienced fund managers, suggesting that few investors will do so.

Market timing: The confidence of investors may cause them to think they can time the market, buy at the low and sell at the high. Therefore, research has shown how challenging it is to try to predict future market situations, frequently leading to underperformance.

Entrepreneurial investments: Overconfidence is also capable of leading to an investment in a business venture by investors who do not fully understand the risks. For instance, an overwhelming belief in the potential of technology drove numerous investors to invest in internet startups after the dot-com bubble burst at the end of the 1990s. Many of these enterprises collapsed as a result of the bubble's collapse in 2000, which resulted in significant losses for investors.

#### 2. Representativeness

The term "representativeness" in behavioral finance refers to a cognitive bias in which people frequently rely on mental models or stereotypes when making assessments or decisions. People frequently determine the likelihood of an event by comparing it to a typical example or the category it falls under. Such prejudice may lead to poor judgment and poor choices.

Rather than thoroughly analyzing the firm's fundamentals, investors often make decisions based on their perception of a company's resemblance to previous success stories or industry leaders. A representativeness bias can also indicate the availability bias, where people base their opinion on how easy it is for examples to appear and thus do not take into account the real likelihood of an event.

According to Kahneman and Tversky (1974), the representativeness bias is directly responsible for some biases, such as base rate, sample size neglect, and conjunction. The bias in the base rate is leading investors to make decisions based on little or no information. However, the sample base rate is a bias that causes investors to improperly assess the sample size to be used since they are unaware of the procedures involved in obtaining the sample. As a result, investors have a propensity to make decisions or draw conclusions from a limited number of solid facts. The conjunction fallacy is a bias that follows from the representativeness bias because it degrades the probability principles. In addition, forecasting decisions may be influenced by a representativeness bias, such as predicting future sales or market trends. When a salesman sees a few positive signals or encounters a few successful transactions, he may generalize them and become overly optimistic about future results, leading to a biased forecast.

The appraisal of investment opportunities can be affected by the representativeness bias as well. In any event, investors can objectively assess the attractiveness of an investment only by taking into account how it is similar to successful investments that they have in the past, regardless of other key factors like market conditions, financial indicators, or industry dynamics.

#### 3. Gambler's fallacy

Gambler's fallacy is a bias that gives the conviction that the occurrence of an event (K) is independent of any other related event, but it is likely to be affected by a different occurred event (L). But in actual sense event K has nothing to do with the occurrence of an event (L) (Rakesh, 2013). It is also known as the Monte Carlo fallacy or the Maturity of Chances fallacy.

The term "gambler's fallacy" also refers to a cognitive bias in which people think that independent, unrelated random events in the past can impact the likelihood of unrelated random events in the future. The incorrect assumption is that if something occurred in the past more frequently than anticipated, it will happen less frequently in the future, and vice versa.

The example of someone playing roulette at a casino can illustrate the gambler's fallacy. Suppose, for the last ten spins, the roulette wheel had landed on red. The gambler's fallacy, based on the idea that there must be a "balance" between red and black outcomes, would lead one to believe that black is more likely to happen on the next spin. Each spin on the roulette wheel is independent of the previous outcomes and does not have a bearing on subsequent results.

Another gambler's fallacy in the financial markets is when investors believe that if a stock has been rising steadily for several days in a row, it's about to fall. By contrast, if the stock drops for several days, people might think it has a better chance of rising. Those assumptions disregard the randomization of stock price fluctuations and the unreliability of prior results.

The second theme of behavioral finance is Prospect theory, under this theme falls many factors like framing, loss aversion and mental accounting. We are going to explore each one of them:

#### A- Prospect theory:

In behavioral finance, the concept of prospect theory explains how people make decisions under uncertain circumstances. The theory was originally developed in 1979 by Daniel Kahneman and Amos Tversky, who has been leading the way for behavioral finance ever since.

In prospect theory, individual evaluators assess possible outcomes based on potential gains or losses relative to a reference point. Either the current state of the individual or an alternative outcome that serves as a comparison may be the reference point. People tend to be risk-averse when evaluating potential gains and risk-seeking when evaluating potential losses. To put it another way, they're more willing to take risks to avoid losses than to make profits.

Here are some examples of prospect theory in action:

Investment Decisions: In assessing possible investment profits, investors tend to be more riskaverse. A more cautious investor might be deterred by investing in an extremely risky but highly rewarding stock due to a lack of conviction about the possibility of gains that are sufficiently strong to justify risks. On the other hand, investors may be more willing to take risks to avoid losses when assessing potential losses. For example, to avoid the perceived psychological pain of continuing to hold onto a losing investment, investors may be more willing to sell shares which have already lost value while at the same time incurring further losses.

Gambling: Gambling behavior can also be considered a result of the prospect theory. If people are in a situation where they've been experiencing losses, they become more willing to take risks. For instance, someone who has already lost money at the casino can be more likely to gamble in a bid to get their losses back even if this means taking greater risks.

Insurance: Insurance decisions are also influenced by the prospect theory. When people think about possible losses, for instance, the loss of their home or car, they're more willing to take out insurance. Consequently, potential losses are considered to be more important compared with possible gains from avoiding the loss.

#### 1. Framing

Framing refers to the way information is presented or framed, which can influence how individuals perceive and make decisions about that information. In the context of investing, framing can play a significant role in how investors perceive risks and rewards associated with different investment options.

For example, if an investment opportunity was framed positively, emphasizing potential gains, investors may be more likely to perceive the investment as low risk and more attractive. On the other hand, if the same investment opportunity was framed negatively, emphasizing potential losses, investors may perceive the investment as higher risk and less attractive.

Framing can also influence investors' perception of a given investment option in relation to other options. For example, if an investment opportunity is framed as a safe investment in comparison to another investment option that is framed as high risk, investors may be more likely to choose the safe option, even if the actual risks and returns are not objectively better.

Studies in the behavioral finance field have shown that framing can lead to irrational investment decisions. In fact, a study conducted by Tversky and Kahneman (1981) found that investors were more inclined to take risks when they received information focused on potential losses instead of possible profits. The relationship between the framing effect and the financial well-being and investment behavior of investors has also been investigated by Wahla, Akhtar and Shah (2019). Results from this study showed that there is a negative correlation between the framing effect and the financial well-being and investment behavior of investors, as he cited researchers such as Kahneman and Tversky (1984) that this bias could influence the investors making decisions that can adversely affect the well-being of the investor. In addition, Ritter (2003) argued that investors could easily understand the information presented positively rather than negatively or neutrally. Another example is Barber and Odean's 2001 study, which showed that investors were more likely to remain in risky stocks if they had already tasted a gain. It is known as the disposition effect, and it can lead investors to hold on to losing investments longer than they should to avoid realizing losses.

#### 2. Mental accounting:

Mental accounting is a concept in behavioral finance that describes how people categorize their financial resources and make decisions based on these categories. People tend to treat money differently depending on how it is framed or labelled, even if it is essentially the same resource. Here are some examples of mental accounting in action:

Budgeting: People often use mental accounting when budgeting their money. For example, they may allocate certain amounts of money for specific categories such as food, rent, and entertainment. It can help them manage their money more effectively by keeping track of how much they are spending in each category. However, it can also lead to suboptimal decisions if they are unaware of their finances. For instance, a person may spend more money on entertainment than necessary while not saving enough for emergencies.

Windfall gains: Mental accounting can also affect how people spend windfall gains such as bonuses, tax refunds or inheritance. People may treat this money differently than regular income and use it to make indulgent purchases or splurge on a luxury item. They may fail to allocate it to long-term savings or investments, even though it would be beneficial in the long run.

Sunk cost fallacy: Mental accounting can also lead to the sunk cost fallacy, where people persist with an investment or decision that has already cost them money because they view the money spent as separate from the current decision-making process. For example, someone may be reluctant to sell a stock that has lost value, even if it is no longer a good investment because they view the initial investment as a sunk cost that cannot be recovered.

#### **3.** Loss aversion:

The tendency for investors to feel the pain of losses more keenly than the joy of gains is known as the loss aversion bias. According to studies, loss aversion can cause people to think and act irrationally, such as holding onto financial losses for an extended period (Tversky and Kahneman, 1991). Investors with loss aversion tend to sell lucrative investments fast, which reduces returns. Here are some examples:

Selling winners too early: Investors who are loss averse may sell their winning stocks too early to lock in gains and avoid the pain of a potential loss. This behavior can limit potential returns as the stock continues to rise.

Holding onto losers too long: Loss aversion can also cause investors to hold onto losing stocks for too long, hoping for a rebound. It can lead to larger losses as the stock continues to decline.

Panic selling: This loss aversion can drive investors to despair and sell their investments at the bottom when a market downturn occurs, without taking advantage of possible profits that follow an economic recovery.

Inertia: Loss aversion can also lead to a sense of inertia, where investors are reluctant to make changes to their portfolios even when it is necessary to do so. It can lead to a lack of diversification and missed growth opportunities.

**B-** Emotions:

Baker and Nofsinger (2010) explain that the market can be very intrusive and volatile, and emotions can certainly spring out of place and make decisions improperly go through the right channel or plans made. They also emphasized that emotions play a substantial part in the lives of human behavior, thinking processes and growth. Emotions such as fear, greed, and anger can significantly impact investors' decisions in various ways:

For example, fear is a powerful emotion that often leads investors to make irrational decisions. When markets experience volatility or downturns, fear can trigger a "flight or fight" response, causing investors to panic and sell their investments hastily. This behavior can result in selling at low prices and missing out on potential recoveries. Fear can also lead to a reluctance to invest, causing individuals to miss out on potential opportunities for long-term growth. In addition, greed is characterized by an excessive desire for wealth or profit. It can lead investors to take on excessive risk or engage in speculative behavior. Investors driven by greed may chase after high returns without assessing the associated risks properly. This behavior can result in investment losses when market conditions change or speculative assets fail to meet expectations. These emotions can interact with cognitive biases and amplify their effects. Fear may, for example, increase investors' aversion to losses and make them prioritize avoidance of losses above possible gains. Greed has the effect of reinforcing confirmation bias and leading investors to seek

information that confirms their positive outlook, ignoring conflicting evidence. Knowing the influence of emotion on decision-making and trying to find an emotional balance is crucial for investors. It may help to mitigate the negative effects of these emotions on investment decisions if investors can manage their behavior appropriately, carry out research, diversify portfolios and retain a solid long-term perspective. Investors may be tempted to engage in excessive trading or adopt risky investments due to the fear of missing out (FOMO) and overconfidence. Investors can pursue new high-performing assets or try and recover losses quickly, which leads to impulsive and irrational decisions. This behavior can also lead to higher transaction costs, reduced returns and a lack of success in achieving investment objectives for the longer term. To recognize the influence of these emotions and biases on their decision-making process, investors must take this into account. Developing self-awareness, practising mindfulness, and utilizing rational decision-making frameworks can help investors make more informed and disciplined choices in these emotions. There are three biases under emotions that the researcher would be looking at, Optimism Bias, Illusion of Control, and Regret Aversion.

#### 1- Optimism bias:

Optimism is described by Lovallo and Kahneman (2003) as the investor's propensity to embrace one's inner perspective over one that is more in line with actual circumstances. The inner vision is the investor's frame of mind and the standards they set for what is and isn't acceptable. It exhibits optimism bias in that decisions would be dependent on sentiments, which are biased and do not reflect reason. Investors are encouraged to face reality and explore outcomes that pour into their best interests. However, according to Riaz and Iqbal (2015), optimism bias is a prejudice fueled by personal interests or when your values and personal interests align. Shefrin (2007) argues that optimism is typically associated with the overestimation of a desired result when compared to an adverse result. Iqbal (2015) emphasized the significance of optimism bias in investment decisionmaking, particularly in high-risk decisions, since it involves both micro and macroeconomic activities. He also mentioned how closely the price volatility and the optimism bias are related.

#### 2- Illusion of control

Shefrin (2007) described the illusion of control as the tendency of people to believe they have some influence or control over an event or outcome when, in reality, they don't. Another impact of this bias, according to Qadri and Shabbir (2014), is that it causes overtrading, which increases

expenses. According to Langer (1975), the illusion of control is referred to as "inappropriate personal success," which is higher than the anticipated result. Thus, this success is defined within the limits of human cognition. Tyszka (2004) and others like Qadri and Shabbir (2014) connected the illusion of control bias with overconfidence. According to Chudzian, Podliska, and Adno (2018), the illusion of control bias is influenced by five factors: choice, the order of results, knowledge of the problem, information, and commitment. This component massively exaggerates the perception of control bias. They simply stated that when these factors are brought into play through a familiar method, whether accidental or intentional, it offers the investor a sense of control while not being in control of the outcome. Below are some examples of the illusion of control:

Familiarity and control: The illusion of control can be boosted when individuals feel more familiar or knowledgeable about a particular investment or market. They may believe that their expertise and understanding give them a greater sense of control over the outcomes. It can lead to overemphasizing familiar investments or industries, potentially ignoring diversification opportunities.

Feedback and reinforcement: The illusion of control can be reinforced by either positive outcomes or perceived successes. If an investor experiences a few successful investment decisions, they may attribute it to their skill or control, reinforcing the illusion. This reinforcement can strengthen the belief that their actions can influence future outcomes, leading to further risk-taking or overconfidence.

Attribution bias: Individuals who think they are in control can attribute positive outcomes to their actions or abilities whilst blaming negative results on external factors or bad luck. In addition to reinforcing trust in their control and contributing to increased confidence in future investment decisions, such biased attributions may contribute to overconfidence.

#### 3- Regret aversion

Pompian (2011) explains regret aversion as a psychological phenomenon that is mostly reflected in investors. Regret aversion bias is a cognitive bias that refers to the tendency of individuals to avoid making decisions that they may later regret. It stems from the fear of experiencing the negative emotions associated with regret, such as disappointment, guilt, or remorse. In investment decision-making, regret aversion bias can have a significant impact on the choices investors make and their overall portfolio performance. One common manifestation of regret aversion bias is the reluctance to sell investments that have declined in value. Investors often hesitate to sell underperforming stocks or assets because they fear the regret of realizing losses if the investment subsequently recovers. This bias can lead to a phenomenon known as "holding on to losers," where investors stubbornly cling to underperforming investments instead of cutting their losses and reallocating their capital to more promising opportunities. By succumbing to regret aversion, investors may miss out on potential gains and expose themselves to further losses. For example, consider an investor who purchases shares of a technology company at \$100 per share. Over time, the stock price declines to \$60 per share. Despite negative news about the company's financial health and industry trends, the investor hesitates to sell due to regret aversion. They fear regretting the decision to sell if the stock were to rebound in the future. As a result, they continue to hold onto the declining investment, potentially missing out on the opportunity to invest in other companies with higher growth prospects. Regret aversion bias can also influence investment decisions related to missed opportunities. Investors may regret not taking action when presented with an attractive investment opportunity in the past. This bias can lead to a "fear of missing out" (FOMO) mentality, where investors feel compelled to chase after the latest investment trends or market fads, even if the underlying fundamentals do not justify the investment. The desire to avoid regret can push investors into making impulsive decisions based on short-term market movements rather than conducting thorough analysis and maintaining a long-term investment strategy.

To mitigate the impact of regret aversion bias, investors can adopt several strategies. One approach is to establish clear investment goals and develop a well-diversified portfolio aligned with their risk tolerance and long-term objectives. By focusing on the bigger picture and maintaining a disciplined investment strategy, investors can reduce the likelihood of making emotionally driven decisions based on regret aversion.

Additionally, investors can embrace a mindset that acknowledges that losses and missed opportunities are part of the investment process. By accepting that not all investment decisions will result in success, individuals can detach themselves from the fear of regret and make more objective and rational choices. Regret aversion bias can significantly influence investment decisions. Whether it leads to holding onto underperforming investments or chasing after speculative opportunities, the fear of regret can hinder investors from making optimal choices. By understanding this bias and employing strategies to mitigate its impact, investors can strive for more rational decision-making and enhance their overall investment performance.

Moreover, regret aversion bias can also impact investment decisions regarding the timing of buying or selling assets. Investors may be reluctant to sell an investment that has gained value because they fear regretting the decision if the asset continues to appreciate further. This phenomenon, known as "selling winners too early," can lead to missed opportunities for capturing additional gains. By succumbing to regret aversion, investors may lock in profits prematurely and fail to fully capitalize on the potential upside of their investments.

For instance, consider an investor who purchases shares of a biotechnology company at \$50 per share. Over time, the stock price rises to \$100 per share. Due to regret aversion, the investor may feel hesitant to sell, fearing the possibility of regret if the stock continues to climb. As a result, they may sell the shares at \$100, missing out on potential further gains if the stock were to appreciate even more.

Regret aversion bias can also manifest in the context of investment diversification. Investors may feel regretful about not allocating a larger portion of their portfolio to a particular asset class or investment that has experienced significant growth. This regret may lead them to overweight that investment in the future, deviating from a well-diversified strategy and exposing themselves to concentrated risk. This behavior can be driven by a desire to avoid the potential regret of missing out on future gains from the favored investment.

For example, suppose an investor regrets not investing more heavily in the technology sector during a period of substantial growth. Motivated by regret aversion, they may overweight their portfolio with technology stocks, disregarding the importance of diversification across various sectors. By doing so, they become overly exposed to the risks specific to the technology industry, potentially amplifying the impact of market downturns or sector-specific setbacks.

In conclusion, regret aversion bias can impact investment decisions in various ways, including reluctance to sell underperforming investments, selling winners too early, and deviating from a well-diversified portfolio. By recognizing and actively addressing this bias, investors can strive

for a more balanced and rational approach to investment decision-making, reducing the potential negative impact on their investment performance.

#### C- Market Impact

Market impact bias refers to the tendency of investors to overestimate the impact of their own buying or selling activities on the market. It stems from the belief that their actions can significantly influence the price of an asset, leading to inflated perceptions of their own market power. This bias can have implications for trading strategies, market liquidity, and transaction costs. Investors affected by market impact bias often assume that their buying or selling activities will cause substantial price movements in the direction of their trades. This perception can lead to a sense of urgency and a desire to execute trades quickly, fearing that delaying the transaction may result in higher prices or missed opportunities. As a result, investors may be more inclined to accept less favorable terms or pay higher transaction costs to ensure immediate execution. For example, imagine an individual investor who wants to purchase a significant number of shares in a particular stock. Due to market impact bias, they believe that their buying activity will drive up the stock price. This perception may lead them to execute the trade quickly, willing to pay a higher price to ensure they secure the desired shares. However, in reality, the investor's buying activity alone may not have a significant impact on the overall market price. On the other hand, investors influenced by market impact bias may hesitate to sell a large number of shares, fearing that their selling activity will cause the price to decline rapidly. They may hold onto their positions, waiting for an opportune moment to sell, or scale down their sell orders to minimize the perceived market impact. As a result, they may miss out on potential profit-taking opportunities or fail to rebalance their portfolios effectively. It's important to note that market impact bias can be particularly prevalent among individual investors who have limited trading capital or engage in small-scale transactions. The perception of having a significant impact on the market may be amplified due to the relatively smaller size of their trades compared to institutional investors or market participants with substantial resources. In reality, the impact of an individual investor's buying or selling activity on the overall market is typically negligible, especially in highly liquid markets with large volumes of trading activity. The prices of financial assets are determined by a complex interplay of numerous factors, including supply and demand dynamics from various market participants, institutional trading activities, and macroeconomic influences. The actions of any single investor

are unlikely to have a substantial and lasting effect on market prices. To mitigate the impact of market impact bias, investors should develop a realistic understanding of their own market power and the broader market dynamics. Recognizing that their individual trades are unlikely to significantly influence prices can help investors approach trading decisions more objectively and avoid impulsive actions driven by inflated perceptions of their market impact. Moreover, employing a systematic and disciplined approach to trading, such as implementing predefined trading strategies or using limit orders, can help investors make decisions based on objective criteria rather than being swayed by market impact bias. By setting clear goals, conducting thorough research, and considering the broader market environment, investors can enhance their decision-making processes and reduce the potential negative consequences of this bias.

#### 1- Overreaction to price changes

Nader and Zahra (2018) consider overreaction and underreaction as expected glitches in a financial market based on new information, and it is usually associated with price return Overreaction to price change is a cognitive bias observed in financial markets where investors tend to overestimate the significance of recent price movements and react excessively to them. This bias can lead to exaggerated buying or selling behavior based on short-term price fluctuations, potentially causing the market price to deviate from its fundamental value.

Investors affected by overreaction to price change bias often exhibit a trend-chasing behavior. When an asset's price experiences a significant increase or decrease, they tend to assume that the trend will continue and make investment decisions based on this expectation. This can result in buying into an asset that has experienced a price surge or selling off an asset that has declined rapidly, without fully considering the underlying fundamentals or longer-term market trends.

For example, imagine a stock that has recently experienced a substantial price increase over a short period. Investors influenced by overreaction to price change bias may perceive this price surge as a signal of future growth potential. They may rush to buy the stock, pushing its price even higher. However, if the initial price increase was driven by temporary factors or market speculation, the subsequent overreaction may cause the stock price to become detached from its intrinsic value, creating a potential market bubble. Conversely, investors affected by overreaction to price change bias may panic and sell off an asset after it has experienced a rapid decline. They may assume that the declining trend will continue indefinitely, leading to further losses. This selling pressure can exacerbate the price decline, potentially creating an oversold situation where the asset becomes undervalued. It's important to note that overreaction to price change bias can contribute to market inefficiencies. By amplifying short-term price movements, this bias can lead to price distortions and increased market volatility. Moreover, over time, as market participants recognize the tendency for overreactions, arbitrage opportunities may arise as investors exploit the mispricing caused by this bias. To mitigate the impact of overreaction to price change bias, investors can adopt a more disciplined and analytical approach to decision-making. This involves conducting thorough research, considering a broader range of information beyond just recent price movements, and evaluating the fundamental factors that drive the value of an asset. By focusing on long-term trends and the underlying economic or business fundamentals, investors can make more informed and rational investment decisions. Implementing investment strategies such as value investing, or contrarian investing can help counteract the biases associated with overreaction to price change. These strategies involve identifying assets that may be undervalued due to market overreactions and taking advantage of the subsequent correction. By maintaining a diversified portfolio and adhering to a long-term investment plan, investors can reduce the influence of short-term price fluctuations and make more rational investment choices. In summary, overreaction to price change bias refers to the tendency of investors to place excessive importance on recent price movements and react disproportionately to them. This bias can lead to trend-chasing behavior and contribute to market inefficiencies. By adopting a disciplined approach, conducting thorough analysis, and focusing on long-term fundamentals, investors can mitigate the impact of this bias and make more rational investment decisions.

#### 2- Past trend of stocks

Andreassen, Paul and Stephen (1988) argue that when investors are shown historical prices and expected to trade in a stock market, they generalize this trend periodically. Kahneman and Tversky (1974) also explained that investors like to categorize price patterns to their specific trends leading to feedback. The past trend of stock bias, also known as the "recency bias" or "historical trend bias," refers to the tendency of investors to give undue weight to recent price movements or trends when making investment decisions. This bias can lead investors to assume that the future performance of a stock will mirror its recent past performance, without thoroughly considering other relevant factors. Investors affected by the past trend of stock bias often rely heavily on

historical price data or the recent performance of a stock as a primary factor in their decisionmaking process. They may assume that if a stock has been performing well in recent months or years, it will continue to do so in the future. Conversely, if a stock has been declining, they may assume that the downtrend will persist. For example, suppose a stock has experienced a significant upward trend over the past year, consistently delivering strong returns. Investors influenced by the past trend bias may be tempted to invest in the stock based solely on its recent performance, without thoroughly evaluating its underlying fundamentals or considering potential risks. This bias can lead to an inflated perception of the stock's growth potential, potentially resulting in overvaluation and increased vulnerability to market corrections. Conversely, if a stock has been declining in recent months, investors affected by the past trend bias may be inclined to avoid or sell the stock without considering other factors that may impact its future performance. This bias can lead to missed opportunities if the decline is temporary or fails to account for potential positive catalysts that could drive a stock's recovery. The past trend of stock bias can be reinforced by cognitive heuristics, such as the availability heuristic, where individuals rely on readily available and easily accessible information (in this case, recent price data) to make judgments or decisions. The bias can also be amplified by confirmation bias, where investors seek out information that supports their existing beliefs about the stock's future trajectory. To mitigate the impact of the past trend of stock bias, investors should adopt a more comprehensive and balanced approach to investment analysis. This involves considering a wide range of factors, including fundamental analysis, industry trends, company performance, competitive landscape, and macroeconomic conditions. By conducting thorough research and analysis, investors can make more informed decisions based on a holistic view of the stock's potential, rather than relying solely on recent price movements. Implementing a disciplined investment strategy, such as value investing or growth investing, can help counteract the bias associated with past trends. Value investors focus on assessing the intrinsic value of a stock relative to its current market price, regardless of recent trends. Growth investors, on the other hand, evaluate a stock's growth prospects based on longterm factors rather than short-term performance. Additionally, maintaining a diversified portfolio can help reduce the impact of any individual stock's performance on overall investment returns. By spreading investments across different asset classes and sectors, investors can mitigate the risks associated with relying too heavily on the past trend of any specific stock. The past trend of stock bias refers to the tendency of investors to place disproportionate weight on recent price movements or trends when making investment decisions. By adopting a comprehensive approach to analysis, implementing disciplined investment strategies, and maintaining a diversified portfolio, investors can mitigate the influence of this bias and make more rational and well-informed investment choices.

#### D- Herd behavior:

The tendency of an investor to follow a larger group's action when these actions are irrational is called herding bias. Studies indicate that herd behavior leads to inefficient and volatile markets by making investors move in a similar direction leading to price movements which may not be justified by the fundamentals of an asset (Banerjee, 1992). In financial markets, herding behavior might also contribute to bubbles and crashes. In behavioral finance, herd behavior is a phenomenon that describes how individuals tend to follow the crowd's actions and decisions rather than making their own decisions based on their analysis of the situation. Here are some examples of herd behavior in action:

Stock market bubbles: Herd behavior can lead to stock market bubbles, where the price of a particular stock or the overall market becomes inflated beyond its actual value. Investors may buy into the market or stock because others are doing rather than based on a fundamental analysis of the stock value. As more and more investors buy in, the price continues to rise until it reaches a point where it is no longer sustained, and a bubble bursts, leading to a market crash.

Real estate booms: Herd behavior can also lead to real estate booms, where people rush to buy property in a particular area because others are doing so. It can lead to an increase in property values, creating a self-fulfilling cycle where more and more people buy in, leading to further price increases. However, when the trend reverses, such as a recession or a drop in demand, the property values can fall sharply, leading to significant losses for those who bought in at the peak.

Investment fads: Herd behavior can also lead to investment fads, where investors rush to invest in a particular sector or type of investment due to its popularity during that time. It can lead to a bubble in that sector, which eventually bursts, leading to significant losses for those who bought in at the peak.

Panic selling: In market downturns, herd behavior may also lead to panic selling. If an investor sees others reducing their shares, he or she may reduce his own too, thereby creating a domino

effect that could bring down prices sharply. Media coverage or social media, which could amplify panic and boost herd behavior, can exacerbate this. Other types of behavioral finance include:

- E- Other Biases
  - 1- Anchoring:

The tendency of an investor to rely too heavily on the first piece of information which he or she encounters when making a decision is called anchoring bias. Studies have shown that anchoring bias contributes to incorrect assessment of investment value, which leads to unsuitable investment decisions (Kahneman and Tversky, 1979). In other words, it is common to set a starting price below what the market value will eventually be when a company issues an Initial Public Offering (IPO). Investors can be anchored by this low starting price and thus believe that the stock is undervalued even when it goes up. Moreover, market trends such as the performance of a particular industry or index, may also be relied upon by investors. Investors may take comfort in a sector or an index's strong performance over time and assume that it will remain so as the market begins to weaken. Eventually, investors might get influenced by analyst recommendations that may impact their purchase or sale of a particular stock. Therefore, investors may be persuaded to adhere to this if the analyst has been issuing accurate recommendations regularly, although it is not in their best interests.

2- Confirmation bias:

The trend of investors seeking information confirmed by their previous beliefs and disregarding information contradicting those beliefs has been referred to as confirmation bias. Studies show that biased confirmations lead to investment decisions which have not been adequately justified and are based on incorrect information (Larrick et al., 2007). Market insufficiencies and volatility can also be caused by confirmation bias. In behavioral finance, confirmation biases happen when investors seek information that confirms their existing beliefs and ignores evidence contradicting them. Below are some examples of confirmation bias in action:

Selective information gathering: Investors may selectively gather information that confirms their existing beliefs about a stock or market and ignore information that contradicts them. It can lead to an incomplete understanding of the investment and its potential risks and rewards.

Ignoring warning signs: Confirmation bias can cause investors to ignore warning signs about a stock or market that contradicts their beliefs. For instance, an investor may continue to hold onto a stock despite negative news about the company because he is convinced it will rebound.

Dismissing expert opinions: Investors may dismiss expert opinions that contradict their beliefs and instead seek out opinions that confirm their biases. However, it can lead to a lack of diversification and missed growth opportunities.

Understanding the concepts and theories of behavioral finance can help investors and financial professionals make better decisions by recognizing the psychological biases that may affect their judgment.

### Chapter 3: Behavioral Finance and Decision Making

Decision-making is the process of selecting a specific alternative from among multiple workable ones. It necessitates a complex multi-step process, including examining numerous personal, technical, and environmental factors. Concerning stock market decisions, there are no exceptions to this rule. The fundamental problem faced by investors is making an investment decision when personal aspects like age, educational attainment, income, and other criteria are taken into account. Technically speaking, financial models like the Capital Asset Pricing Model (CAPM) are used to inform investment decisions. Therefore, without considering situational factors that take into account the environment, precisely the market psychology, decision-making should be disregarded. Effective decision-making in the stock market requires a full awareness of human nature from a global perspective on top of financial skills. Thus, cognitive psychology should be given attention in decision-making (Chandra, 2008). As a result of the bull market from 2004 to 2007 and the subsequent financial crisis, there have been various fresh focuses on irrational investors.

It is becoming more and more critical to understand the behavior of irrational investors. Given that investors are heavily influenced by behavioral finance, it is an integral part of the decision-making process. Understanding how our emotions can give rise to irrational behavior is a fundamental concern for all investors (Banerjee, 2011). The investment community can thus learn about the different biases it represents and take steps to prevent them to increase its efficiency (Parikh, 2011). However, investors frequently make mistakes, such as selling their investments too soon after realizing profits, holding onto them for too long after suffering losses, and purchasing overpriced stocks in response to strong market sentiment and widespread approval. According to Parikh, the secret to an investor's success is to confront the emotional indiscipline he has shown and deal with it so that it does not happen again. In parallel, and according to Warren Buffet, you only get rational behavior when you combine sound intellect with emotional discipline (Parikh, 2011).

### Chapter 4: Institutional vs individual investors

#### Institutional investors

Institutional investors play a significant role in the financial markets, representing large entities such as pension funds, insurance companies, mutual funds, hedge funds, and other investment firms that manage substantial amounts of capital on behalf of their clients or beneficiaries. These institutional investors differ from individual investors in terms of size, resources, investment objectives, and regulatory requirements. Here are some key points about institutional investors:

Size and Influence: Institutional investors typically manage substantial pools of capital, which grants them considerable influence in the financial markets. Their buying and selling activities can significantly impact asset prices, trading volumes, and market liquidity. As a result, their behavior and investment strategies can shape market trends and influence overall market outcomes.

Long-Term Investment Horizon: Unlike many individual investors having shorter investment horizons, institutional investors often have long-term investment objectives, such as meeting pension obligations or generating returns for insurance policyholders. Their long-term perspective allows them to make investment decisions based on fundamental analysis and value investing principles. It can contribute to market stability by counterbalancing short-term market fluctuations driven by individual investors' sentiments.

Market Efficiency and Pricing: Institutional investors contribute to market efficiency by conducting thorough research, analysis, and due diligence before making investment decisions. Their sophisticated investment teams and resources help gather and assess information, leading to more accurate price discovery and efficient capital allocation. Institutional investors' involvement in the market contributes to reducing mispricing and enhancing market efficiency.

Active versus Passive Investing: Active and passive investing strategies are widely used by institutional investors. Active investing is an activity which actively selects and manages the portfolio of securities to beat a benchmark or generate alpha. Conversely, passive investing will
strive to replicate the performance of a specific market index or asset class. However, a significant impact on market dynamics happened through the growth of passive investing strategies, such as index funds and Exchange-Traded Funds (ETFs), which increased liquidity in markets.

Influence on Corporate Governance: Institutional investors often hold substantial ownership stakes in publicly traded companies, allowing them to influence corporate governance matters. Through voting on important issues such as board elections, executive compensation, and corporate policies, institutional investors shape the direction and behavior of the companies they invest in. This influence can contribute to improving corporate governance practices and enhancing shareholder value.

Regulatory and Fiduciary Responsibilities: Institutional investors are subject to various regulatory frameworks and fiduciary responsibilities. Regulatory bodies impose rules and guidelines to ensure transparency, fair practices, and protection of investor interests. Institutional investors have a fiduciary duty to act in the best interests of their clients or beneficiaries and are expected to adhere to high ethical standards and prudent investment practices.

Institutional investors, with their substantial financial resources, expertise, and long-term investment perspective, significantly influence the functioning and behavior of financial markets. Their investment decisions, trading activities, and engagement in corporate governance can shape market trends, contribute to market efficiency, and impact the overall stability of the financial system.

# Individual investors

Individual investors are individuals who invest their funds in the financial markets, also referred to as retail or small investors. Unlike institutional investors, which deal in large quantities of capital on behalf of others, an individual investor typically invests his or her own savings and wealth. Here are some key points about individual investors:

Investment Goals and Objectives: There are various investment targets and objectives for individual investors. Some have invested in building wealth over the decades, like retirement

planning or financing their children's education. Moreover, the dividends or interest payments can be invested by others to generate income. However, individual investors may have specific financial objectives, such as purchasing a home or starting their own business. Their personal circumstances, as well as their particular financial situation and desire to pursue it, affect most of their investment decisions.

Limited Resources and Expertise: Individual investors usually have more limited financial resources and investment expertise than institutional investors. They may not have access to the same level of research, analysis, or financial advice. As a result, individual investors often rely on publicly available information, online platforms, financial advisors, or investment newsletters to make their investment decisions.

Risk Appetite and Risk Tolerance: Individual investors have varying levels of risk appetite and risk tolerance. Some individuals may be more risk-averse, preferring lower-risk investments such as bonds or conservative funds. Others may be more comfortable with higher levels of risk and seek potentially higher returns through investments in stocks or alternative assets. Understanding and managing risk is a crucial consideration for individual investors to align their investment choices with their risk preferences.

Behavioral Biases: Individual investors are susceptible to various behavioral biases that impact their investment decisions. These biases, such as loss aversion, overconfidence, herding behavior, or anchoring, can lead to irrational investment choices, chasing market trends, or panic selling during market downturns. Recognizing and managing these biases is essential for individual investors to make sound investment decisions.

Access to Investment Options: Individual investors have a wide range of investment options at their disposal. Investors may be interested in investing in stocks, bonds, mutual funds, Exchange-Traded Funds (ETFs), real estate, commodities, or alternative investments. Depending on the factors such as location, investment platform, or financial regulations in their respective country, this variety of investments may be difficult to access.

Empowerment through Technology: In recent years, technological progress has provided significant incentives to individual investors. Individuals can easily access investment information, timely market data, and trade execution from the comfort of their own homes through online brokerage platforms, investment apps, or financial websites. Increased accessibility has resulted in more investment opportunities being available, giving individual investors a greater degree of control over their investment decisions.

Long-Term Investing and Wealth Accumulation: Like institutional investors, individual investors often have long-term investment horizons and seek to accumulate wealth over time. They may adopt strategies such as dollar-cost averaging, where they regularly invest fixed amounts regardless of market conditions. Otherwise, they may focus on building diversified portfolios to manage risk and generate long-term returns.

Individual investors collectively represent a significant portion of market participants and can impact market liquidity and sentiment. Their investment decisions, trading activities, and behavioral biases can contribute to market volatility, trend formation, and even market inefficiencies. Recognizing the unique characteristics and needs of individual investors is crucial for market participants, regulators, and financial institutions to provide appropriate support, education, and investment options tailored to their requirements.

# Effect on the financial markets

Both institutional and individual investors can significantly impact the financial markets, albeit in different ways.

Market Liquidity: Institutional investors with their substantial resources and trading activities, contribute to market liquidity. Their large-scale buying or selling influences the supply and demand dynamics of securities, leading to price changes and increased trading volumes. This liquidity provision can enhance market efficiency and facilitate smooth transactions. However, individual investors, although on a smaller scale, collectively contribute to market liquidity through their trading activities.

Price Movements: Both institutional and individual investors can influence asset prices. Thus, institutional investors and due to their size and influence can drive price movements when they make significant buying or selling decisions. Their trading activities can impact market sentiment and contribute to trends and momentum. Individual investors, on the other hand, may have a more localized impact on prices, particularly in smaller stocks or less liquid markets. Their buying or selling decisions can create short-term price movements.

Herding Behavior: Herding behavior, in which investors are guided by other people's actions and decisions rather than making their own judgements, is a problem for institutional and individual investors. This behavior can cause price movements to become exaggerated, leading to market bubbles or crashes. It significantly impacts market outcomes, increases price movements, and contributes to increased market volatility when institutional investors or influential individuals display herd behavior.

Market Efficiency: Institutional investors, with their extensive research capabilities and resources, can contribute to market efficiency by conducting thorough analyses and providing accurate price discovery. Their investment decisions based on fundamental analysis can help correct mispricing and align asset prices with their intrinsic values. While often less influential, individual investors contribute to market efficiency by incorporating available information into their trading decisions.

Systemic Risk: Due to their senior positions and interconnectedness, institutional investors pose systemic risks to the financial markets. If a significant institutional investor faces financial distress or has to sell off assets rapidly, it can have spillover effects on other market participants and the broader financial system. The actions of individual investors, though less likely to cause systemic risks, can collectively contribute to market volatility and amplify the impact of market downturns.

Corporate Governance: Holding substantial ownership stakes in companies, institutional investors exert influence on corporate governance issues. They can actively engage with company management, vote on shareholder resolutions, and advocate for better corporate practices. Their involvement can lead to improved corporate governance standards and increased shareholder value. Individual investors, although typically having smaller ownership stakes, can also participate in corporate governance through proxy voting or shareholder activism.

To point out some market examples, the study on the differences in the holdings of institutional investors relative to individual investors during eight months between March and November 2000, where the Nasdaq Composite index fell 46.23% in value showed many results. It found evidence that during the market decline, institutional investors held stocks with less return volatility than individual investors.

The considerably increased susceptibility to negative risks may be explained by institutional investors' preference for holding stocks with lower volatility during a bear market. Institutional investors were therefore shown to have outperformed individual investors within that particular period. The claim that institutional investors favor less risky stocks has a mixed body of factual support.

The evidence of a link between the level of institutional holdings with lower risk stocks was found by Badrinath, Gay, and Kale (1989) and Aggarwal and Rao (1990). In parallel, evidence suggests that institutional investors are associated with more volatile stocks, according to Kothare and Laux (1995). Gompers and Metrick (2001) found that institutional investors favor stocks in larger market capitalization companies that are more liquid and have better book-to-market ratios than individual investors, based on a large data set spanning 1980-1996. However, they find no noticeable link between institutional holdings and stock return volatility. Falkenstein (1996) only examined the years 1991 and 1992 to see how US Open-End Mutual Funds preferences have changed, finding that they prefer very volatile stocks. According to Sias (1996), there are a few reasons why investors might opt for lesser volatile stocks, including:

- A strict man's rule is in place for many institutions.
- More and better information may be required in the case of greater institutional interest.
- Fads and noise trading influences are less likely to affect institutional investor behavior.

Sias (1996) discovers, in opposition to this intuition, that higher institutional ownership levels for NYSE-listed securities between 1977 and 1991 are linked to higher contemporaneous stock return volatility. He concludes that the evidence does not support the idea that institutional investors favor riskier stocks, but rather that a rise in institutional ownership may be a contributing factor to rising volatility. While Gompers and Metrick (2001) and Sias (1996) do not provide a definitive answer regarding investor preferences for less risky or higher risky stocks over time, distinct patterns can be observed in rising and falling markets. Specifically, during a market downturn, institutional investors tend to hold stocks with lower volatility compared to individual investors. This behavior may be influenced by the fiduciary responsibilities inherent in institutional investment management. To test this hypothesis, we examine the differences in holdings between institutional and individual investors during a period when the Nasdaq experienced a significant decline. Over an eight-month period from March to November 2000, the Nasdaq Composite index plummeted by 46.23% in value, while the NYSE index remained relatively stable with a negligible change of -2.43%. To establish a control group, we conducted similar tests on NYSE-listed stocks that did not experience a significant market decline. The data for this period reveals a statistically significant relationship between institutional ownership levels and the current means and standard deviations of daily returns for individual securities on the Nasdaq. Specifically, higher levels of institutional ownership are associated with increased average daily returns and decreased risk, as measured by the standard deviation of daily returns. It is important to note that the impact of institutional and individual investors on financial markets can be influenced by various factors, including their investment strategies, time horizons, risk preferences, and market conditions. Additionally, regulatory frameworks and market infrastructure play a role in shaping the interactions and impacts of different investor groups on financial markets. Some studies have investigated whether an investor's trading behavior is influenced more by information about values or psychological biases. Two categories of theoretical trading models have been developed to explain the two potential influences of behavior. This information-based model claims that investor trades based on information advantage. Other research concluded that institutional investors, such as bank securities and firms outperform individual investors. Results also indicate that investors' current trading behavior is influenced by feedback from previous trading. Thus, higher return and pass trading will result in a higher degree of buying and vice versa. According to Grinblatt, and Keloharju, the trading behavior of an investor is based on momentum indicators.

Institutional investors tend to be well-capitalized financial institutions with a long history of successful investment and other stock markets. These investors buy winning stocks and sell past losing stocks. This behavior is contrary from the perspective of individual investors. The research also indicated that the portfolio of institutional investors outperformed the portfolio of individual investors, highlighting the relationship between investors' sophistication and performance. Grinblatt and Keloharju found that Finnish investors' behavior is more likely to be influenced by the firm location and language, and the culture of the firm CEO. Harless and Peterson investigated investor behavior regarding the delay in extracting themselves from funds with predictable, poor performance and how they select such types of funds in the first place. The study's empirical results suggest funds with poor performance can endure because, in the aggregate holding, mutual funds are partially and very slowly adjusted, and investors choose funds based on recent returns without adjustment for different risks. As the representativeness heuristic suggests investors anchor judgments, a future from performance on the extremeness of previous return, then sufficiently adjust their judgment for the predictive validity of the return information. In the eye of investors returns generated by mutual funds in the past can be the best predictor of the future performance of these funds if they ignore the costs of risk associated with the funds. Through utilizing conjoint methods of investigation of results, which have been utilized once as part of a non-financial item decision, Murphy and Soutar explored the traits which have an impact on the behavior of individual investors when they settle on a choice to purchase financial products. They found that the mainstream individual investors were not much concerned with speculation, as the normative majority of individual investors with long-term investors. To decide to buy a particular stock for them, the related financial indicator, where the P/E ratio and dividend are announced by the particular firm.But the most relevant measures were recent ups and downs, share price and activities of the management of the firm, and modern finance theories emphasizing the rational behavior to maximize wealth. Investment selection decisions are made by considering and comparing the risk and return profile of potential investment opportunities more recently, research behavior finance and psychology has found that attitude to financial and investment decisions may also be affected by internal behavioral factors, such as individual knowledge of themselves and external behavior factors, such as the way an investment decision is presented and framed.

# Chapter 5: Investor's behavior and market outcome

The relationship between investor behavior and market outcomes is complex and multifaceted. Investor behavior refers to the actions and decisions made by individuals or institutional investors in the financial markets, while market outcomes encompass the overall performance, volatility, and efficiency of the markets.

Investor behavior can significantly impact market outcomes in several ways:

Price Movements: Investor behavior, particularly trading activities, can influence the supply and demand dynamics of securities, leading to price fluctuations. If investors exhibit herding behavior, following the crowd and making decisions based on others' actions rather than fundamental analysis, it can result in price bubbles or crashes.

Market Volatility: Emotional or irrational behavior by investors can contribute to increased market volatility. For example, panic selling during market downturns can amplify price declines and lead to excessive volatility. Conversely, euphoric buying during bull markets can inflate prices and create speculative bubbles.

Market Efficiency: Investor behavior plays a crucial role in determining the efficiency of financial markets. Efficient markets are characterized by prices that accurately reflect all available information. However, if investors exhibit behavioral biases such as overconfidence, loss aversion, or anchoring they may misinterpret or ignore information, leading to market inefficiencies and mispricing.

Liquidity and Trading Volume: Investor behavior influences market liquidity and trading volume. High levels of investor confidence and positive sentiment increase trading activity and liquidity, while fear and uncertainty can lead to reduced trading volumes and liquidity constraints. Long-Term Investment Performance: Individual investors' behavior, such as their investment horizon and risk tolerance, can impact their long-term investment performance. Emotion-driven decisions like panic selling during market downturns or chasing hot trends can result in suboptimal returns. On the other hand, disciplined and rational investment strategies tend to yield more consistent outcomes over time.

It is important to note that while investor behavior can influence market outcomes, it is not the sole determinant. Other factors, such as economic conditions, geopolitical events, monetary policies, and company-specific factors, also play significant roles in shaping market outcomes. Additionally, market outcomes, in turn, can influence investor behavior, creating a feedback loop between the two.

#### **Implications For Stock Prices**

Investor behavior plays a crucial role in determining stock prices and can have significant implications for market outcomes. The way investors perceive and react to information, as well as their behavioral biases, can influence the supply and demand dynamics of stocks, ultimately impacting their prices. First of all, investor herding, where individuals follow the actions of others rather than making independent decisions, can lead to price distortions. When a large number of investors engage in herding behavior, it can create momentum in stock prices, driving them away from their fundamental values. This can result in overvaluation during buying frenzies or undervaluation during panic selling, leading to market inefficiencies. Additionally we have the overreaction and Underreaction: to news or market events can cause stock prices to deviate from their intrinsic values. Investors may overreact to positive news, driving prices excessively high, or overreact to negative news, pushing prices excessively low. These biases can lead to temporary mispricing that create opportunities for savvy investors to profit by exploiting market inefficiencies. Investors may be slow to update their valuation models or reassess their perceptions, leading to delayed price adjustments and potential mispricing. Also investors perceive a positive trend in a stock and start buying, their actions can attract more buyers, further driving up the price. Conversely, if investors panic and start selling, it can trigger more selling pressure and drive prices down. These feedback loops can amplify price movements and increase market volatility. It is

important to note that while behavioral biases can introduce short-term distortions, market forces and rational investors eventually correct these mispricing over time. Market participants who recognize and exploit these biases can contribute to price efficiency by capitalizing on opportunities created by behavioral-driven price discrepancies. Understanding the implications of investor behavior for stock prices highlights the significance of behavioral finance in shaping market outcomes. Market efficiency depends on the collective actions and decisions of investors, and behavioral biases can introduce temporary inefficiencies. Recognizing these biases and their impact on stock prices can help investors make more informed decisions and contribute to a more efficient market.

#### The Size and Value Premium

The size premium refers to the observation that historically, smaller companies tend to outperform larger companies over the long term because they tend to face bigger risks and challenges. However, as investor bias works in the concept "higher risk, higher return". In addition, investors tend to invest in large cap stocks which is the result of the herding bias, causing small cap stocks to be undervalued. The size and value premiums are concepts in finance that describe observed differences in returns between stocks of different sizes and with different valuation characteristics. The size premium refers to the historical tendency of small-cap stocks to outperform large-cap stocks over the long term. Small-cap stocks are typically associated with smaller companies with a market capitalization below a certain threshold. The size premium suggests that investors may be rewarded with higher returns for taking on the additional risk associated with investing in smaller, less-established companies. This premium is often attributed to factors such as higher growth potential, increased volatility, and reduced analyst coverage for small-cap stocks.

On the otherside, value premium reflects the historical tendency of value stocks to outperform growth stocks over time. Value stocks are generally characterized by lower price-to-earnings (P/E) ratios, price-to-book (P/B) ratios, or other fundamental valuation metrics. They are often perceived as undervalued or overlooked by the market. The value premium suggests that investors may be compensated for investing in these undervalued stocks with higher returns over the long run. This premium is often attributed to factors such as mean reversion, market mispricing, and the potential

for value stocks to experience positive price adjustments as their intrinsic value is recognized by the market. Both the size and value premiums have been widely studied and observed in empirical research. However, it is important to note that these premiums are not guaranteed and can vary over different time periods and market conditions. Additionally, there can be periods when these premiums may not be present or even reverse temporarily, reflecting the inherent uncertainties and fluctuations in the financial markets. Investors and portfolio managers often consider these premiums when constructing their investment strategies. Some investors may choose to allocate a portion of their portfolios to small-cap stocks or value stocks in an attempt to capture these potential return advantages. However, it's important to note that investing based solely on these premiums carries risks and should be done with careful consideration of individual investment goals, risk tolerance, and diversification. The size and value premiums describe historical return differences between stocks of different sizes and with different valuation characteristics. The size premium suggests that small-cap stocks have historically outperformed large-cap stocks, while the value premium indicates that value stocks have outperformed growth stocks over the long run. These premiums reflect observed market phenomena, but their presence and strength can vary over time. Investors should evaluate their investment objectives and risks before incorporating these premiums into their investment strategies.

#### Momentum

Momentum is the anomaly where returns are correlated positively with previous returns. It is in contrast to reversal, where returns are correlated negatively with the former returns. In the context of momentum, herding behavior can lead to continuation of price trends. If a stock or asset experiences an increase in the price, investors will buy and driving the stock price to increase, therefore, create a momentum effect in the market. Momentum, in the context of finance and investing, refers to the tendency of assets or securities that have exhibited strong price performance in the recent past to continue experiencing price momentum in the future. It is a widely observed phenomenon in financial markets and has been the subject of extensive research and analysis. It can be categorized into two main types:

Cross-Sectional Momentum: Cross-sectional momentum focuses on the relative performance of assets within a given period. It identifies securities that have outperformed their peers over a specific time frame, such as the past three, six, or twelve months. The idea is that assets that have exhibited recent strong performance are more likely to continue performing well in the near future. This strategy involves buying securities that have demonstrated positive momentum and selling those that have exhibited negative momentum.

Time-Series Momentum: Time-series momentum, also known as trend-following or price trend momentum, focuses on the direction and persistence of a security's own price movement. It identifies securities that have shown consistent upward or downward price trends over a specified time period. Investors using time-series momentum strategies typically buy securities that have experienced positive price trends and sell those that have shown negative trends.

The underlying rationale behind momentum is rooted in investor behavior and market dynamics. It is believed that momentum arises from factors such as investor psychology, herding behavior, and the delayed reactions of market participants to new information. Momentum strategies assume that price trends persist due to the slow adjustment of prices to new information and the behavioral biases of market participants. Investors who employ momentum strategies aim to capture the continuation of price trends and generate profits from them. They typically buy assets that have shown positive momentum and sell or avoid assets that have shown negative momentum. Momentum strategies can be applied to various asset classes, including stocks, bonds, commodities, and currencies. However, it is important to note that momentum investing carries certain risks and challenges. Momentum strategies rely on the assumption that price trends will continue, but there is no guarantee that this will always be the case. Price reversals or trend reversals can occur, leading to losses for investors following momentum strategies. Additionally, there can be periods of market inefficiency or irrational pricing that may impact the performance of momentum strategies. Momentum strategies are often used in conjunction with other investment approaches, such as value investing or fundamental analysis, to diversify risk and enhance overall portfolio performance. Combining different investment styles can help balance the potential benefits of momentum strategies with the long-term value and fundamental characteristics of assets. It also refers to the tendency of assets that have exhibited strong price performance to continue experiencing price momentum in the future. Momentum can be observed in both crosssectional and time-series contexts. Investors using momentum strategies aim to capture these trends and generate profits. However, momentum investing carries risks and should be used judiciously in the context of a well-diversified investment approach.

Overall, momentum is the result of the market impact bias of the investors, which are the overreaction and past trend stock.

# Week High Anomaly

The "week high anomaly" is a term used in finance to describe a phenomenon where stocks that have recently reached their highest price over a specific time period tend to continue performing well in the short term. This anomaly suggests that stocks that have recently achieved a new high price have a higher probability of experiencing further price increases in the near future.

The week high anomaly is often associated with behavioral biases and investor psychology. It is believed that investors tend to exhibit a preference for stocks that have recently shown strong price momentum or have reached new highs. This preference can be driven by a fear of missing out (FOMO) or a belief that stocks that have already performed well will continue to perform well. As a result, these stocks may attract increased buying interest and demand, leading to further price appreciation. Investors who employ week high anomaly strategies may seek to identify stocks that have recently reached new highs and purchase them in anticipation of continued price increases. This strategy involves buying stocks that have demonstrated positive price momentum and capitalizing on the perceived behavioral biases of other market participants. However, it is important to note that the week high anomaly is not a guaranteed strategy for success. While stocks that have recently reached new highs may continue to perform well in the short term, there is no certainty that this trend will persist. Price reversals or trend reversals can occur, leading to losses for investors following this anomaly. Furthermore, the week high anomaly should be considered within the broader context of a well-diversified investment approach. Relying solely on this anomaly as a strategy may expose investors to undue risk or concentration in specific stocks or sectors. Investors and researchers continue to study anomalies like the week high anomaly to better understand the factors influencing stock returns and market dynamics. The week high anomaly highlights the influence of investor behavior and psychological biases on stock prices and can provide insights into short-term price trends. However, investors should exercise caution and

conduct thorough analysis before implementing investment strategies based solely on this anomaly.

## Post-Earnings Announcement Drift

Post-earning announcement drift (PEAD) is a phenomenon observed in financial markets where the stock prices of companies tend to exhibit persistent abnormal returns following the release of their earnings announcements. Specifically, stocks that report positive earnings surprises (i.e., earnings that exceed analysts' expectations) tend to continue to generate positive abnormal returns in the subsequent weeks or months, while stocks with negative earnings surprises tend to continue to generate negative abnormal returns. PEAD suggests that the market's initial reaction to earnings announcements is not fully efficient, and there is a delayed adjustment of stock prices to reflect the new information. This delay can be attributed to various factors, including investor underreaction or overreaction, information processing delays, and behavioral biases. One possible explanation for PEAD is that investors may initially underreact to positive earnings surprises, failing to fully incorporate the positive implications for the company's future prospects. As a result, these stocks may continue to experience price increases as more market participants revise their expectations and adjust their investment decisions accordingly. Conversely, for stocks with negative earnings surprises, investors may initially overreact and sell off the stocks, leading to further price declines. The market may take time to reassess the impact of the negative news, leading to a continuation of the negative abnormal returns. PEAD has been extensively studied in academic research and has been observed across different markets and time periods. However, it is important to note that PEAD is not a guaranteed trading strategy, as there are risks and challenges associated with exploiting this anomaly. Factors such as transaction costs, market liquidity, and the potential for reversals or changes in market sentiment can impact the profitability of trading strategies based on PEAD. Investors and market participants should be cautious when considering investment strategies based on PEAD and conduct thorough analysis and risk assessment. It is advisable to incorporate PEAD within a broader investment framework that includes other fundamental and quantitative factors to make informed investment decisions. Post-earning announcement drift (PEAD) refers to the phenomenon where stocks that report positive or negative earnings surprises tend to generate persistent abnormal returns in the subsequent period. PEAD suggests that the market initially underreacts or overreacts to earnings news, leading to delayed

adjustments in stock prices. However, investors should carefully evaluate the risks and challenges associated with trading strategies based on PEAD and consider incorporating it as part of a comprehensive investment approach.

In the context of anchoring bias, the investor relies too heavily on one information or a past information when making a decision. If the earnings surprise in positive, investors may adjust their expectations, accordingly, leading to continue buying and increase the abnormal return.

## Seasonality Effect

The seasonality effect in the financial markets refer to the tendency of asset prices to exhibit predictable patterns. Investors may engage in mental accounting bias by allocating funds specifically for seasonal investing. They tend to allocate more funds to invest in during certain seasons that have historically shown return. Also, during certain seasons, investor sentiments may become more positive and optimistic.

Studies of stock returns consistently show that they are higher on some days of the week or even in some specific months of the year. However, various anomalies are found in stocks, treasury bills, debt, and exchange rates.

## Day-Of The-Week Effect

The "day of the week" effect, also known as the "weekday effect" or "calendar effect," refers to the phenomenon where stock returns exhibit patterns that are related to the specific day of the week. This effect suggests that stock returns on certain days of the week may be systematically different from others. Historically, research has shown some empirical evidence of day-of-the-week patterns in stock returns, although the magnitude and persistence of these patterns have varied over time and across markets. The most commonly observed day-of-the-week effect is the "Monday effect" and the "Friday effect."

Monday Effect: The Monday effect suggests that stock returns on Mondays tend to be lower, on average, compared to the other days of the week. This effect has been attributed to negative news or events that occur over the weekend, leading to increased selling pressure on Monday mornings.

Additionally, investor sentiment may be influenced by negative market expectations or psychological factors at the start of the trading week.

Friday Effect: The Friday effect, on the other hand, suggests that stock returns on Fridays tend to be higher, on average, compared to other weekdays. This effect has been attributed to positive news or events that are released on Fridays, such as favorable economic indicators or corporate announcements. Additionally, some investors may engage in buying activity on Fridays to position themselves favorably for potential positive news or events over the weekend.

It is important to note that the day-of-the-week effect has diminished over time as markets have become more efficient, and market participants have adjusted their trading strategies to exploit any predictable patterns. Moreover, the day-of-the-week effect can be influenced by other factors, such as market conditions, economic news, and global events, which can override or diminish its significance. While the day-of-the-week effect may be interesting from an academic perspective, it is generally not considered a reliable or profitable trading strategy on its own. Trading strategies based solely on the day of the week may expose investors to transaction costs, market risks, and challenges in capturing consistent abnormal returns.

#### Month Effect

The "month effect," also known as the "calendar month effect," refers to the observed patterns or anomalies in stock market returns that are related to specific months of the year. This effect suggests that stock returns may exhibit systematic differences across different calendar months. Historically, researchers have identified various month effects in stock market returns. Some of the commonly observed month effects include the "January effect," the "December effect," and the "September effect."

January Effect: The January effect is one of the most well-known month effects. It suggests that stock returns in January tend to be higher, on average, compared to other months. This effect has been attributed to factors such as year-end tax strategies, window dressing by fund managers, and renewed optimism in the market at the start of the year. Additionally, some small-cap and value stocks have historically exhibited stronger performance in January.

December Effect: The December effect refers to the observed tendency of stock returns to be higher, on average, in December compared to other months. This effect has been attributed to factors such as year-end portfolio rebalancing, tax considerations, holiday season optimism, and institutional fund flows. It is worth noting that the December effect is often intertwined with the January effect, as investors may engage in year-end positioning to take advantage of potential January effects.

September Effect: The September effect suggests that stock returns in September tend to be lower, on average, compared to other months. This effect has been observed in some studies and has been attributed to factors such as seasonal patterns of investor behavior, increased market volatility after the summer months, and concerns related to the resumption of trading activities after vacations.

It is important to note that the month effect is not a consistently reliable or profitable trading strategy on its own. Market efficiency, changing market dynamics, and the increasing awareness of these anomalies among market participants have diminished the significance and predictability of month effects. Moreover, month effects can be influenced by other factors such as economic conditions, geopolitical events, and market sentiment, which may override or diminish their significance in specific periods. When making investment decisions, investors should consider the month effect as one factor among many other fundamental, technical, and quantitative factors. Adopting a well-diversified, long-term investment approach that incorporates thorough analysis, risk management, and consideration of individual investment goals and time horizons is typically recommended to achieve investment objectives.



Figure 1: Financial market anomalies caused by investor behavior

# Chapter 6: Behavioral finance and financial crisis

The relationship between investor behavior and financial crises is a topic of great significance in finance. Financial crises are periods of severe disruption in the financial system, often characterized by sharp declines in asset prices, widespread insolvencies, and economic downturns. Understanding how investor behavior contributes to the occurrence and severity of financial crises is crucial for policymakers, market participants, and researchers alike.

The behavior of investors plays a vital role in determining the dynamics of financial markets, and it is likely to have a critical impact on both its size and duration during crises. The behavior of individual and institutional investors has a detrimental effect on market inefficiencies and increased volatility and possibly contributes to the reinforcement of unfavorable market trends.

This introduction explores the relationship between investor behavior and financial crises, shedding light on the various behavioral factors that come into play during these periods. It delves into how certain psychological biases, herding behavior, excessive risk-taking, and a lack of rational decision-making can contribute to the onset and propagation of financial crises.

By examining historical episodes of financial crises, we can observe the patterns of investor behavior that contributed to the instability in financial markets. Moreover, the introduction discusses how policymakers and regulators have sought to address these behavioral factors through regulatory reforms and risk management measures to mitigate the likelihood and impact of future crises.

Understanding the relationship between investor behavior and financial crises can help investors and market participants make well-informed decisions, policymakers design effective regulations, and researchers develop frameworks to assess and manage systemic risks. By examining the interplay between investor behavior and financial crises, we can gain valuable insights into the vulnerabilities and challenges inherent in modern financial markets and work towards creating more stable and resilient financial systems. Several renowned economists, including Robert Shiller (author of "Irrational Exuberance"), Nouriel Roubini, Stephen Roach (from Morgan Stanley), and analysts from the Bank of International Settlements, have received acclaim for their ability to anticipate the global financial crisis (Karabell, 2009). However, despite their insights, none of them were able to accurately predict the exact form the crisis would take or the precise timing of its onset and severity. The mismanagement of risks within the overall financial system, rather than any specific asset or institution, has been a persistent issue for more than a decade. This mismanagement is the primary cause of the imbalances seen in the global economy and the subsequent worldwide financial meltdown.

While individual risks have generally been relatively minor and effectively handled, the magnitude of the risk to the entire system was significant, and unfortunately, it was not given adequate attention. This lack of care resulted in the emergence of global interconnected imbalances that were beyond the control of any single authority. The occurrence of asset bubbles and financial crises is not a novel phenomenon in human history. Despite risk managers referring to them as "six sigma events" or rare occurrences happening once in a century, the reality is that they happen more frequently than that.

The first occurrence of an asset bubble and subsequent collapse can be traced back to the Dutch tulip mania of 1636-1637. Numerous other instances highlight this pattern, including crises such as the Baring Crisis in 1825, 1873, and 1890, the panic of 1907 following a substantial stock market decline in the US (Kamalodin, 2011), the Great Depression in the 1930s, the Latin American debt crisis starting in 1982, the Stock Market Crash of 1987, the aftermath of the Technology bubble in 2000, the Nordic Financial Crisis in the 1990s, the European currency crisis triggered by George Soros's speculation against the sterling pound, the Tequila effect involving the significant devaluation of the Mexican Peso leading to a banking crisis, the Asian Flu during the latter half of the 1990s, the Brazilian fever, and the Russian Cold that resulted in LTCM's bankruptcy, thereby jeopardizing the US financial system in 1998. Additionally, the Flash Crash of May 6, 2010, represents another notable "six sigma event" referring to a sudden and drastic meltdown in the US stock market, with the DJIA dropping by around 9% and subsequently recovering those losses within minutes. This incident marked the second-largest point swing in DJIA history, It is worth emphasizing that human behavior is the common thread linking all of these occurrences.

#### Human Behavior:

Examining the crisis through a behavioral lens enables us to comprehend how human psychology, often referred to as "animal spirits" by Keynes, shapes the decision-making of financial actors and influences both the economy and financial markets. By adopting a behavioral perspective, we gain insight into the role of human behavior and psychology in driving economic and financial outcomes.

When feelings of anxiety, emotional distress, and behavioral biases impede the ability to make sound judgments and decisions regarding risk and reward, it can consistently undermine success. Adopting a behavioral perspective to examine the "animal spirits" that contributed to the present global crisis can help us identify the necessary changes in society, economic thinking, principles, and approaches to economic events. This understanding is crucial in order to prevent the recurrence of similar situations in the future (Florescu, 2009).

In addressing the challenges of the present, we must draw upon the insights gained from previous crises. However, it is important to recognize that the solutions that effectively resolved past problems may not be applicable to the issues we face today. As noted by Daniel Daianu (2008), the underlying causes of the current crisis can be traced to both macro and micro levels, encompassing structural and cyclical factors.

# Structural factors:

The role and complexity of financial markets have significantly increased in financial intermediation. Globalization has facilitated the spread of risk through securitization, leading to markets becoming less transparent or understandable (opaque). Additionally, inadequate risk and econometric models, conflicts of interest among market participants (such as CEOs, independent directors, financial institutions versus customers, rating agencies), and a relentless pursuit of short-term profits that prioritize greed and hubris over long-term goals (due to inadequate compensation schemes) have all contributed to the structural factors of financial crises. Imbalances in saving and spending across various countries and an over-reliance on the self-regulatory nature of markets are other contributing factors. On the other hand, cyclical factors

include excessively low risk-free interest rates implemented by authorities in major economies following the September 11 attacks, aimed at preventing deflationary economic downturns.

From a behavioral perspective, the factors influencing the global financial crisis can be classified into two main categories. These categories stem from various behavioral biases that impact the decision-making process in investments and contribute to distress. The primary behavioral factors encountered are as follows:

#### Optimism / wishful thinking:

The household, corporate, and financial sectors have amplified their borrowing and debt levels, failing to recognize the vulnerabilities and imbalances that resulted. They were under the impression that interest rates would persist at low levels for an extended period, creating a belief that liquidity would be readily accessible to everyone. This belief fostered what Robert Shiller termed "Irrational Exuberance," fueling the formation of asset bubbles. The prevailing optimism even led to predatory lending practices and a decline in ethical conduct as individuals pursued higher returns. In this pursuit, the risks involved were underestimated, while the potential gains were overestimated.

#### Greed and over indebtedness:

Greed and over-indebtedness are two significant investor behaviors that can have detrimental effects on financial markets and individuals' financial well-being.

Greed, in the context of investor behavior, refers to an excessive desire for wealth accumulation or maximizing profits. When greed takes hold, investors may become overly optimistic and take on excessive risks in the pursuit of higher returns. This behavior can lead to inflated asset prices, speculative bubbles, and market inefficiencies. Investors driven by greed often ignore or downplay the potential risks involved and focus solely on short-term gains. This can result in poor decisionmaking, unsustainable investment strategies, and increased vulnerability to market downturns.

Over-indebtedness, on the other hand, refers to a situation where individuals or entities have taken on excessive debt obligations compared to their ability to repay. In the investment context, overindebtedness can arise when investors borrow heavily to finance their investment activities or leverage their positions. While leveraging can amplify potential returns, it also magnifies losses and increases the risk of financial distress. Over-indebted investors may face challenges meeting their debt obligations, especially during market downturns or when investment returns fall short of expectations. This can lead to a downward spiral, where investors are forced to sell assets at unfavorable prices, exacerbating market volatility.

Both greed and over-indebtedness can contribute to financial instability and systemic risks. When a significant number of investors exhibit these behaviors, it can create an environment of excessive risk-taking and unsustainable market conditions. The bursting of asset bubbles and subsequent market corrections can result in severe financial crises, as witnessed in historical events such as the dot-com bubble in the early 2000s and the subprime mortgage crisis in 2008.

Addressing greed and over-indebtedness requires promoting responsible and ethical behavior in financial markets. This involves ensuring adequate investor education, improving risk management practices, and implementing effective regulatory measures to prevent excessive leverage and predatory lending. Encouraging a long-term perspective and promoting sustainable investment strategies can help mitigate the negative consequences of greed and over-indebtedness on individuals and the overall stability of financial markets.

#### Other Factors:

- Pessimism:

The downturn came when investors adjusted their positions simultaneously, triggering a decline in asset prices (Rizzi, 2009). October 2008 was probably a peak when the level of irrational pessimism was the highest in a generation (Martin, 2008).

- Passing the responsibility:

Risk managers have a tendency to attribute their successes to their own abilities in predicting the markets and managing individual risks, while placing the blame for failures on external factors such as the Federal Reserve (FED), Securities and Exchange Commission (SEC), speculators, or other authorities. However, they fail to acknowledge their own responsibility for not taking

precautionary measures and lacking a contingency plan. In essence, they internalize their achievements but externalize their mistakes, refusing to recognize that the fault lies solely with themselves.

- "This time is different" syndrome:

The "This time is different" syndrome refers to a cognitive bias or mindset in which individuals believe that current circumstances or market conditions are fundamentally different from historical patterns or events. This bias leads individuals to believe that conventional wisdom, historical lessons, or traditional investment strategies do not apply to the current situation. It often emerges during periods of market euphoria or when there is a strong belief in the uniqueness or exceptionalism of a particular market or asset class. The "This time is different" syndrome can be driven by various factors, such as technological advancements, economic shifts, regulatory changes, or market innovations. It often manifests when investors become overly optimistic and assume that the current trend will continue indefinitely, leading to inflated asset valuations and speculative bubbles. The syndrome can be dangerous because it can blind investors to potential risks and lead to excessive risk-taking. It can make investors disregard warning signs, overlook fundamental valuation metrics, and underestimate the potential for market corrections or downturns. When the reality eventually sets in, investors may face significant losses as the market reverts to more normal conditions.

Examples of the "This time is different" syndrome can be found throughout history, including the dot-com bubble of the late 1990s, the housing bubble and subsequent financial crisis in 2008, and more recent examples like the cryptocurrency boom and subsequent crash.

To avoid falling into the "This time is different" trap, it is important for investors to maintain a balanced and rational approach. This involves considering historical precedents, conducting thorough analysis, diversifying investments, and being mindful of the potential risks and uncertainties inherent in any investment decision. While each market environment may have unique characteristics, it is essential to remain grounded in fundamental principles and not dismiss the lessons of the past.

Nevertheless, several variables such as financial literacy and risk tolerance levels, access to financial resources, and overall financial goals and aspirations, can impact people's financial behavior during financial crises. Therefore, people can better manage their finances and make wise informed decisions during financial uncertainty by being aware of these variables.

One common financial behavior during times of crisis is an increased focus on saving and reducing spending. In times of economic uncertainty, people tend to cut back on unessential expenses, pay down debt, and increase their savings to build a financial buffer. It can support individuals and households to weather financial storms and protect against future financial shocks.

Another widespread financial behavior during times of crisis is a shift towards more conservative investment strategies. During market volatility, people may be more likely to favor investments perceived as being safer, such as cash, fixed income, or low-risk equities. It helps individuals preserve their wealth and avoid significant losses, but it could also limit their potential for higher return earnings.

Finally, people may be more prone to seek the assistance of financial experts like financial advisors or financial counsellors during times of crisis. It can assist people in forming wise financial decisions and overcoming the difficulties presented by a financial crisis.

# **Chapter 7:** Existing measures and strategies to mitigate the negative effects of behavioral finance on financial markets.

While it is challenging to eliminate the negative effects of behavioral biases on financial markets, several measures and strategies can help mitigate their impact. Here are some existing approaches:

Education and Awareness: we can start by increasing financial literacy and awareness about behavioral biases in order to help investors make informed decisions. Also, educating individuals about common biases such as loss aversion, overconfidence, and herd mentality can make them more conscious of their decision-making processes, accordingly, and as per Daniel Kahneman, the brain has 2 systems, system 1 where everything in conscious and system 2, the subconscious. Once the investors start realizing what they are facing, they can have a control over it.

Regulatory Frameworks: Regulatory bodies can implement rules and regulations to ensure transparency and protect investors from potential exploitation. These regulations may include some measures, such as enforcing disclosure requirements, prohibiting misleading information, and promoting fair competition.

Investor Protection: Governments and regulatory bodies can establish investor protection programs to safeguard investors' interests. These programs may involve mechanisms for resolving disputes, providing compensation for losses, and ensuring financial institutions adhere to ethical standards.

Disclosure and Transparency: Companies and financial institutions can enhance disclosure practices to provide clear and accurate information to investors. It includes timely reporting of financial statements, risk disclosures, and disclosures about potential conflicts of interest.

Behavioral Interventions: Financial institutions can employ behavioral interventions to nudge investors towards better decision-making. Techniques like framing, default options, and simplified choice architecture can guide individuals towards more rational choices.

Diversification: Encouraging investors to diversify their portfolios can help reduce the impact of individual biases on investment decisions. Diversification spreads risk across different asset classes, reducing the potential negative consequence of any single investment.

Long-Term Investing and Goals: Promoting a long-term investment horizon and focusing on financial goals can help mitigate the influence of short-term behavioral biases. Encouraging investors to consider their investment objectives and stick to a well-defined plan can minimize impulsive decisions.

Behavioral Finance-Informed Investment Strategies: Financial professionals and portfolio managers can incorporate insights from behavioral finance into their investment strategies. It may involve techniques like using quantitative models that account for behavioral biases or employing behavioral finance-driven investment strategies, such as contrarian investing.

Robust Risk Management: Implementing robust risk management practices can help mitigate the impact of behavioral biases on investment decisions. It includes setting risk limits, stress testing portfolios, and frequently reviewing and adjusting risk exposures.

Continuous Research and Analysis: Ongoing research and analysis in behavioral finance can uncover new insights and help develop more effective strategies to mitigate the negative effects of biases. It includes studying real-world data, conducting experiments, and collaborating across disciplines.

Robo-Advisors: Digital platforms called Robo-advisors employ algorithms to offer automated investment advice. By relying on impartial data and established investment strategies, they can aid in reducing the impact of human biases. A person's risk tolerance, time horizon, and financial objectives can all be taken into account when a Robo-advisor makes customized portfolio suggestions.

Behavioral Coaching: Financial professionals can provide behavioral coaching to investors, helping them understand their biases and guiding them towards more rational decision-making. It

involves actively working with clients to address emotional biases and guiding them during market volatility.

Peer Influence and Social Norms: Utilizing the power of social norms and peer influence can positively impact decision-making. Highlighting examples of successful long-term investors and promoting positive investment behaviors can help shape investor attitudes and behaviors.

Feedback Mechanisms: Providing investors with regular feedback on their investment decisions can help them recognize and correct behavioral biases. This feedback can include performance reports, benchmarking, and comparisons to market indices, enabling investors to evaluate their decision-making objectively.

Behavioral Finance Training for Financial Professionals: Integrating behavioral finance training into the curriculum for financial professionals can enhance their understanding of biases and equip them with the tools to serve their clients better. It can lead to improved advice, communication, and decision-making processes.

Reducing Information Overload: Excessive information can overwhelm investors and lead to irrational decision-making. Simplifying information, presenting it clearly and concisely, and avoiding information overload can help individuals make further rational choices.

Behavioral Finance Research Dissemination: Disseminating behavioral finance research findings to market participants actively can increase awareness and understanding of biases. It is doable through publications, conferences, seminars, and collaboration between academia and industry professionals.

Ethical Standards and Codes of Conduct: Establishing and enforcing ethical standards and codes of conduct within the financial industry can help curb unethical practices that exploit behavioral biases. It promotes fair and transparent behavior among financial institutions, advisors, and professionals.

Investor Feedback and Input: Encouraging investors to provide feedback and input on financial products, services, and practices can help identify potential biases and improve industry practices. It is doable through surveys, focus groups, and other feedback mechanisms.

Continuous Monitoring and Evaluation: Regular monitoring and evaluation of investment decisions and market outcomes can identify patterns and trends related to behavioral biases. It is employed to refine strategies, improve investor education, and implement necessary policy changes.

It is important to note that no single measure or strategy can eliminate the impact of behavioral biases. Combining multiple approaches and fostering a collaborative effort among regulators, financial institutions, professionals, and investors is crucial to mitigating the adverse effects of behavioral finance on financial markets. While these measures help mitigate the adverse effects of behavioral finance, it is central to recognize that biases are inherent to human nature. Therefore, combining several approaches that target individual decision-making and market structures is crucial for promoting more rational and efficient financial markets.

# **Part II: Methodology:**

# Chapter 1: Research design and method.

According to kothari(2004), research methodology includes the strategies used to tackle a research issue in a specific field. It is significant to note that research methodology, which emphasizes the understanding and comprehension of why certain approaches are necessary for problem solving in research. The research onion model, created by Mark Saunders, Philip Lewis, and Adrian Thornhill (2015), will be applied as a guiding framework to address the before mentioned research questions in order to decide on appropriate tactics for this specific research topic. The different onion model levels are depicted in Figure 2, and each of these sections will be thoroughly examined and addressed.





Philosophy of research according to Saunders et al(2007) research philosophy is a collection of assumptions and ideas that a researcher must adopt in order to advance knowledge. According to Burrell and Morgan (2016) assumptions had to be made at every phase of the research. The authors went on to say that a researcher must take into account three assumptions: an ontological assumption that deals with realities within the scope of the study, Epistemology assumption, which is concerned with satisfactory knowledge and how it can be shared with others, Axiology

assumption deals with the duty of values and ethics in research, to the extent of incorporating the researcher's value in the research being carried out, whether in a neutral or otherwise manner. As stated by Heron (1996), human values serve as a guide for all acts taken, and running research is no exception. The philosophy that would be applied in this research is the Positivism Philosophy, based on the previously mentioned assumptions.

# **Research Approach**

The decisions relating to the approach used, make up the following layer of the research onion. Research methods, as defined by Kothari (2004), are the techniques and strategies utilized in conducting research and are a crucial component of the research methodology. Ragab and Arisha (2018) stress the importance of matching the chosen methodologies with the fundamental presumptions, philosophy, and research approaches.

The three types of research methodologies are quantitative, qualitative, or mixed in nature. Considering this research, the quantitative approaches are thought to be the most effective for this research according to Bryman (2012), and the researchers plans to use them. Williams (2011) argues that using quantitative methods makes it easier to analyze the relationships between variables and produces results that are clearly stated. This will involve the use of measurable data, specifically numeric data, and the application of statistical tools and models, as explained by Creswell (2002).



Figure 3: Deductive approach (Research Methods Knowledge Base, 2021)

#### Methodical choices

Ragab and Arisha (2018) mentioned that the "Quantitative methods include experiments, surveys, structural observations and structural interviews". However, William (2011) finds that qualitative methods involve personal experiences which are better to judge and rather than data. But mainly, the quantitative and qualitative methods are both complementary, therefore we find the mix approach. According to Azorin and Cameron (2010) it is better to do a study following the mix method to prevent any weakness in the data collection and analysis. In this paper, we are going to conduct the quantitative analysis by doing a questionnaire with the Lebanese Investors.

In this research, we are going to see the impact of behavioral biases on investors towards their investment decisions. As per Lewis et al (2015), the survey strategy will allow us to get results and carry a quantitative approach in order to be able to answer the thesis question.

- Sample size and survey design

Saunders et al (2009) and as we have suffered the same, explained that it is impossible to collect data from the entire population because of the lack of time, funds and people's availability. That's why we chose a part of the society as a simple size.

For this research, we will adopt a non-probabilistic sampling, by choosing participants that would take part in the survey. The survey was created on google forms, and we used the Likert scale for this questionnaire as per Nemeto and Belgar (2014) explained that this technique is the more accurate to access psychological buildup.

The resources of this questionnaire along with the questions are mentioned in the Appendix. The first questions were regarding the Nationality of the participants and if they invest in the stock market or not. These questions were asked in order to filter the participants to meet the criteria of this research. The researcher was only interested in the Lebanese investors, 98.4% of the participants were Lebanese.

In addition, the researcher focused also on the sociodemographic characteristics of the participants like the age, gender, education Level and years of experience in the investment industry, and last the questions were based on the behavioral theme. It is important to note that these questions were already used by other researchers and the scale of study was: Strongly disagree, Disagree. Agree. Strongly agree.

Before sharing this survey with the participants, it was tested on 2 people in order to receive their feedback. The feedback that we were given is to reduce the number of questions from 30 to 24 so that the survey can take less time, at first it was too long apparently. In this matter, we focused more on the asked questions and targeted directly the biases.

## Data collection and analysis

The summary of the responses will be used in a descriptive statistic such as graphs in order to give a better presentation.

We filtered the results and removed the answers by people that weren't Lebanese and answered 'No" in the second question (i.e., they do not invest in stock market), this way, the data was cleaned and ready to be analyzed and interpretated.

# Variables and measures

In this part we're going to talk about the variables chosen and the hypothesis tested, which is directly related to the impact of behavioral finance on the investors and how it affects their investment decisions in buying, selling or holding a stock.

The hypothesis for this research was previously tested by economist in their own countries.

We will test the following:

- Hypothesis 1:

H0: The Heuristic bias has no impact on the Lebanese investors' investment decisions.

H1: The heuristic bias has an impact on the Lebanese investors' investment decisions.

#### Sub-Objectives:

Does overconfidence play an important role in the investment decisions? Do the years of experience/Sophistication of the investors affect their decisions?

- Hypothesis 2:

H0: Emotions has no impact on Lebanese investors' investment decisions.

H1: Emotions has an impact on Lebanese investors' investment decisions.

Sub-Objectives:

Does the market volatility affect investment decisions?

Do Investors examine the market before investing?

- Hypothesis 3:

H0: Market impact has no impact on Lebanese Investors' investment decisions.

H1: Market impact has an impact on Lebanese Investors' investment decisions.

Sub-Objectives:

Do these investors react to changes in the market?

To what extend does the investor have a hold on the market.

- Hypothesis 4:

H0: Herding has no impact on Lebanese Investors' investment decisions.

H1: Herding has an impact on Lebanese Investors' investment decisions.

# Chapter 2: Results

First of all, we have to note that this survey was anonymous and all information from this research is confidential.

Now we are going to talk about the results of the analysis. The results will be divided into 2 parts. The first part will show the results from this study, supported by graphs and tables for easier illustration of the results gotten, while the second part will be more analytical and study the correlation between the hypothesis and the results.

The analysis will also be divided into two perspectives. The first one is the study of the demographic factors like the age, experience, and educational level and how these factors affect the investment behavior.

The second perspective of the analytical study consists of various questions that impact the behavioral factors of the investment decisions.

# Descriptive statistics:

#### Demographic Characteristics:

This survey was distributed to more than 300 participants. Unfortunately, only 62 responded at first, and then when the participants didn't invest in the stock market they would have stopped the survey, so only 55 participants completed the survey.

Many retail investors invested in the cryptocurrency market, so they did not finish the survey as it was focused on stock markets only. On a side note, the study of the cryptocurrency market and behavioral finance is something completely different as we do not have fundamental analysis for the crypto market and blockchain, therefore the "trader" will either speculate and completely rely on the biases by either following a trend, imitating an expert or doing technical analysis.

The below table will summarize the number of individuals that filled this part of the survey:

Table	2:	Demographie	c characteristics
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		Percentage
Nationality	Lebanese	98.40%
Wationanty	French	1.60%
	18-27	40.30%
Δαρ	28-37	14.50%
ngu	38-47	4.80%
	47-60	40.30%
Gender	Male	75.80%
Gender	Female	24.20%
	Undergraduate	8.10%
	Graduate	37.10%
Education	Master's Level	46.80%
	PHD or	
	doctorate	8.10%
	Less than a year	38.50%
Investing	1 year to 4 years	28.80%
period	5 years to 9 years	13.50%
rou	10 years and	
	more	19.20%
Type of	Individual	81.50%
investors	Institutional	18.50%

# Gender

In this survey, we have noticed that more males participated than females, the percentage of females is 24.2% which make up a quarter of the chart pie. We can conclude that more men are involved in the financial field and more inclined to investing than females.


Figure 4: Demographic characteristics – Gender

#### Age

The age range that participated in this survey was dominated mainly by investors aged between 18-27 who are the new investors and excited about the market investments with a high risk appetite and less experience, on the other side we have the older investors aged between 47 and 60, that are mainly less risk takers, with more experienced in this field.



Figure 5: demographic characteristics – Age

## Education

The following characteristics is the educational level. Out Of the 62 participants,46.8% of the participants were master level education, 8.1% held a PhD or Doctorate which indicates that almost half of the participants are sophisticated and aware of this study, however, 37.1% of the participants

are graduates, they do not have a high educational level, but they can be market analysts with years of experience in the investment field. Practical experience and disciplined approach to learning and staying informed can lead to successful investments.



Figure 6: demographic characteristics – Education

# Туре

The below pie shows that 80.4% of the participants are retail/individual investors and 19.6% are institutional investors. The access and availability of individual investors was more effective than institutional investors.



Figure 7: demographic characteristics – Type

### Experience

In this part, we are going to see that the years of experience in the investment industry plays a major role in the behavior of the investors.



*Figure 8: demographic characteristics – Experience* 

We can see that 37% of the participants had less than a year of experience in the investment field, 20.4% of the participants had 10 years and above of experience in the investment field which makes them more experts and more exposed to the risks of market that they face on a daily basis.

14.8% had 5 to 9 years of experience in the investment field and 27.8% had 1 to 4 years of experience. We will come to conclusions regarding the biases and the years of experience later.

Now we are doing to study the behavioral biases, the first question represents the Heuristic bias, and to be more accurate, the Overconfidence effect.

# Analysis of the Results

## - Overconfidence

Do You believe that your skills and knowledge of the stock market can help you to outperform the market? <sup>59</sup> responses



Figure 9: Pie of overconfidence bias

We can notice that the overconfidence has a large effect on the investor's decisions with 42.4% of the investors voted "Agree" and 8.5% "strongly agree" and do actually believe that their knowledge and skills can help them outperform the market, however, 37.3% and 11.9% of the participants voted disagree and strongly disagree, which means that they did not fall for the Overconfidence bias. In fact, half of the participants are subject to Overconfidence and the other half can control this behavior.

- representativeness

You rely on past performance to buy stocks because you believe that the good performance will continue?

Figure 10: Pie of representativeness bias



You prefer to invest in large stocks from leading companies? 58 responses

The above statistics show that 46.6% and 8.6% of the participants "agree" and "strongly agree" that they rely on past information to buy a stock. In addition, 56.9% and 5.2% of the participants agree also that they prefer to invest in large stocks. We can see that more than 50% of the participant investors have a representativeness bias. On the other hand, 32.8% disagree that they rely on past information to buy a stock, and 34.5% disagree that they prefer to invest in large leading companies. This indicates that some participants can control their human behavioral during the investment process.

Figure 11: Pie of representativeness bias - 2

### - Gambler's fallacy

You avoid investing in stocks that have recently risen in price over a series of subsequent trading sessions because you believe the trend is more likely to reverse? 57 responses



#### Figure 12: Pie of gambler's fallacy

You believe that investing in high-risk investment gives you a greater chance of making a gain 56 responses





As we can see, 56.9% and 5.3% of the participants agree that they avoid investing in stocks that has recently risen in price because they believe that the trend is more likely to reverse, and 42.9%,17.9% of the investors believe that high risk investment equals to high return. Some investors may also think that a winning stock will not keep on performing in the same way and is more likely to change or deviate.

Now we are going to talk about the second part of the behavioral biases which is Prospect theory:

## - Loss Aversion

s Strongly disagree Disagree Agree Strongly agree

After a prior loss, you become more risk averse. 57 responses

#### Figure 14: Pie of prospect theory - Loss Aversion

In the above, we can see that 54.4% and 12.3% of the participants "agree" and "strongly agree" to the fact that they become more risk averse after a prior loss, although 31.6% of the participants disagree that after a prior loss, they become more risk averse. These decisions are based on the person's financial wealth. People's choices are motivated by the value they assign to gains and losses.

- Mental accounting

You tend to treat each element of your investment portfolio separately 57 responses



Figure 15: Pie of prospect - mental accounting



Figure 16: Pie of prospect – mental accounting – 2

Mental accounting has a high impact on these participants as more than 50% and almost 75% of the investors treat each element of their investment separately but do not ignore the connection between the elements in their portfolio.

The third part of this study will be about the emotions.

**Regret Aversion** \_



You avoid selling shares that have decreased in value and readily sell shares that have increased in

Figure 17: Pie of Regret Aversion

In this question we can see that 64.9% of the participants "Agree" and 5.3% of the participants "strongly agree" that they avoid selling a share that have decreased value because they can't accept the loss of their investment. However, 26.3% of the participants disagree.

#### **Optimistic bias:**



You believe your investment would promise high capital gain 57 responses





43.9%

Figure 19: Pie of Optimistic bias - 2

Almost 73% of the participants have an optimistic bias that their investment would promise capital gain, however 22.8% of these participants disagree and are more likely realistic that they cannot predict their possible gain. In addition we can see that almost 50% of the participants believe they have a good eye and can control the market outcomes, and the other half disagrees because no one can actually predict the market, the market isn't efficient and will always suffer from Black Swan Events as per Nassim Nicolas Taleb (2007).

In the following we are going to see the Market Impact on the investors.

- Past trend stock

You put the past trends of stocks under your consideration for your investment. 58 responses

Strongly Disagree

Disagree

Agree

Strongly Agree



We tend to see that 72.4 % of the participants agree, and 12.1% of the participants strongly agree that they take into consideration past trend of stocks. One of the main principals of the Efficient Market Hypothesis is that past patterns and historical data do not reflect or cannot be used to predict future prices. But we are seeing that more than 75% of the participants are affected by the past trend bias which indicates that the Market isn't efficient.

- Overreaction



Figure 21: Pie of overreaction

In this part, 51.7% of the participants agree, and 10.3% strongly agree that they react quickly to new information while 36.2% disagree that they react quickly to new information, and they tend more to wait and analyze the market before overreacting.

The last part of this study is:

- Herding

Other investors' decisions of the stock volume have impact on your investment decisions 58 responses



Figure 22: Pie of herding

You usually react quickly to the changes of other investors' decisions and follow their reactions to the stock market 58 responses





You would be inclined to follow investment advice or ideas received during a face-to-face conversation from a friend or colleague. 58 responses



Figure 24: Pie of herding – 3

We can notice that investors are affected by each other's investment, as per figure 22 and figure 24, more than 50 % of the participants follow advice or ideas from a friend and are affected by other investor's decisions. However, in figure 23, 48.3% and 12.1% of the participants disagree and strongly disagree that they reach quickly to changes of other investors decisions.

Based on the statistical analysis conducted in this research, several key findings emerged, and these results contributed to a deeper understanding of the behavior of the Lebanese investors.

# Correlation between the variables

This section seeks to show the relationship between the demographic characteristics and the behavioral factors. We are going to analyze mainly the experience and the education effect on the behavior. As a start, we download the excel from the google form where all the answers of the survey are shown and with Microsoft new updates, and then there is the "Data Analytics" part, and this is how we can study the correlation between the columns in this excel.

## Education:

		Disagree	Agree	Impact
	Overconfidence	57.14%	42.86%	Low
Heuristic	Representativeness	45.24%	54.76%	Moderate
	Gambler's fallacy	47.62%	52.38%	Moderate

Table 3: correlation between education and heuristic

Table 3 shows us that there is a moderate impact slightly higher than average to be considered high between gambler's fallacy, Representativeness, and educational level of the participants. Hence, there is a low impact of education level on the Overconfidence effect. This means that the more the investor is educated, the less he will have an Overconfidence bias.

		Disagree	Agree	Impact
	Loss Aversion	38.09%	61.91%	High
Prospect	Mental			
	accounting	50%	50%	Moderate

Table 4: Correlation between education and prospect theory

As for table 4, we can see that the more educated the investor is, the more he lowers his risks and prefers to study the market more accurately. The loss aversion bias is very high with 61.91% impact on the investment decision among the Lebanese investors. In fact, investors with high education level tend to be more aware of the potential risk associated with the investment. However, mental accounting has a very moderate effect on the investment decisions with 50% of the participants agreed. It is important for investors, regardless of their education level, to recognize and address mental accounting bias, by taking a holistic approach to financial decisions, investors can strive to make more rational Investment choices.

		Disagree	Agree	Impact
Emotions Regret Aversion Optimistic Bias	Regret			Moderately
	Aversion	42.86%	57.14%	High
	Optimistic			
	Bias	35.72%	64.28%	High

Table 5: : Correlation between education and Emotions

Table 5 shows us that the Lebanese Investors are always affected by emotions besides the fact that they are well educated with a master and PhD degree, however we can never run from the biases that are human nature, but we can learn to control them. In this study, we can see that 57.14% of the Lebanese investors that have a master and PhD degree are affected by the regret aversion after a prior loss. Also, they are highly affected by the Optimistic bias ,64.28% of the participants agreed that their investments have a high capital gain and that their good eye for investments gives them control on the market outcomes.

		Disagree	Agree	Impact
Market	Overreaction	47.62%	52.38%	Moderate
impact	Past trend			
Impact	stock	14.29%	85.71%	High

Table 6: Correlation between education and Market impact

In the above table we can see that the market impact bias has a very high impact on the Lebanese investor's investment decisions. 52.38% of the investors agreed that they overreacted to certain information. In figure 18, we see that more than 60% of the participants agree and strongly agree that they overreact, however, when we studied the correlation between the education level and the overreaction, we came to the conclusion that the more you are educated the less you will overreact to certain information, you will take more time to analyze and study the market. In addition, we can see that the past trend stock bias has a very high impact on Lebanese investors with a high educational level with 85.71%.

		Disagree	Agree	Impact
Herding	Herding	44.44%	55.56%	moderate

Table 7: Correlation between education and Herding

The last bias is herding, and we can see from table 7 that it has an impact on the Lebanese investors with a high education level, hence the impact is close to moderate compared to figure 22,23 and 24.

We conclude that Lebanese investors with advanced education would still be influenced by the behavioral biases but with a lower percentage.

In this next part we are going to analyze the correlation between the experience Lebanese investors have in the investment market and the effect on their behavioral biases.

Experience:

		Disagree	Agree	Impact
	Overconfidence	51.67%	48.33%	Low
				Moderately
Heuristic	Representativeness	41.67%	58.33%	High
				Moderately
	Gambler's fallacy	41.72%	58.28%	High

Table 8: Correlation between experience and Heuristic bias

The above table shows the correlation between the years of experience of the Lebanese investors and the heuristics bias, the more the experience they have, the less they are overconfident, and this is due to many market factors that they have already experienced throughout the years with 48.33%. Regarding the Representativeness bias and gambler's fallacy bias, they still have a higher impact on the investment decisions of the Lebanese investors.

		Disagree	Agree	Impact
				Moderately
Prospect	Loss Aversion	43.33%	56.67%	High
riospeet	Mental			Moderately
	accounting	45%	55%	High

Table 9: Correlation between experience and Prospect bias

We can see in the above table that the years of experience in the Investment field did not lower the behavioral bias as Lebanese investors still suffer from loss aversion by 56.67% even after having 10 years of experience and a mental accounting bias with 55% impact of the investment decision.

		Disagree	Agree	Impact
Emotions	Regret			Moderately
	Aversion	43.33%	56.67%	High
	Optimistic			
	Bias	35.00%	65.00%	High

Table 10: : Correlation between experience and Emotions

Regarding the fact that the Lebanese investors have a high experience in the Investment market, yet they are still affected by the emotions especially the optimistic bias with 65% impact on the investment decision.

		Disagree	Agree	Impact
Market	Overreaction	47.62%	52.38%	Moderate
impact	Past trend stock	14.28%	85.72%	High

Table 11: Correlation between experience and Market Impact

We can realize after these results that 52.38% of the investors with a long experience and an overreaction bias have a moderate impact on the investment decisions. However, 85.72% of these same investors have a very high past trend stock that affects their investment decisions in the market.

		Disagree	Agree	Impact
				Moderately
Herding	Herding	45.55%	54.45%	High

Table 12: Correlation between experience and Herding

The last bias is herding, and even though the investors have experience in the market, the herding bias has an impact on the Lebanese investors in their investment decisions with 54.45%.

Overall, we can see that there is a relationship between the behavioral biases. This implies that as experience continue these biases will continue influencing the Lebanese investors decision making.

In this next part we are going to analyze the correlation between the age of Lebanese investors and the effect on their behavioral biases.

Age

		Disagree	Agree	Impact
	Overconfidence	68.19%	31.81%	Low
Heuristic	Representativeness	54.54%	45.46%	Low
	Gambler's fallacy	50.00%	50.00%	Moderate

Table 13: Correlation between age and heuristic

As we can see, there is a strong correlation between Age and Heuristic bias. In fact, the older the investor is, the lower the biases affect his decision making, 31.81% of the participants aged between 38 and 60 agreed that they are overconfident during in investment decision and 68.19% disagreed as they do not believe that they can outperform the market. Also, regarding the representativeness bias, we can see that the older the investor is, the less this bias has an impact on his investment decisions, with 45.46% of the participants that agreed that they rely on past information of a stock or prefer to invest in a leading company. And finally, Gambler's fallacy has a very moderate impact on the investment decisions of older investors.

		Disagree	Agree	Impact
	Loss Aversion	15 15%	54 55%	Moderate
Prospect		43.4370	54.5570	High
	Mental accounting	36.36%	64%	High

Table 14: Correlation between age and prospect theory

We can see in table 14 that the prospect theory has a high impact on the age of the investors, 54.55% of the participants aged between 37 and 60 agreed that they have a moderate loss aversion bias and that after a prior loss they become more risk averse. On the other hand, the correlation between mental accounting and age is very high, with 64% of the participants agreed.

			Disagree	Agree	Impact
Emotions	Regret Aversion		45.45%	54.55%	Moderately
					High
	Optimistic Bias		45.45%	54.55%	Moderately
					High

Table 15: Correlation between age and Emotions

Also, table 15 shows us that the older you are, as an investor in the financial markets, the more you have control over your emotions and actions. The impact of the age on the investment decisions when it comes to emotion bias is very moderate with 54.55% of the participants aged between 37 and 60 agreed that they have an optimistic bias and regret aversion bias.

		Disagree	Agree	Impact
Market	Overreaction	72.72%	27.26%	Low
impact	Past trend stock	18.18%	81.82%	High

Table 16: Correlation between age and Market impact

We can see in the above table that the older you are the less you are likely to have an overreaction bias. Overreaction is driven by high emotional responses to market movements. The younger the investor is the more he will overreact to certain market fluctuations. The older the investor is the more he is able to manage these overreactions. In fact, 72.72% of the investors disagreed that the

react quickly to new information in the market. However, they are highly affected by the past trend bias.

		Disagree	Agree	Impact
Herding	Herding	51.51%	48.49%	Low

Table 17: Correlation between age and Herding

The Table 17 indicates that the older you are, the less you are affected by the herding bias.

In conclusion, younger individuals have less exposure to the market and to investment scenarios and market fluctuations. The older the investor is, the more he has developed a more realistic perception of risk and return, which reduces the effect of behavioral biases on his investment decisions.

From the above analysis, we therefore accept H1 reject the null hypotheses 1,2,3 and 4:

H0: The Heuristic bias has no impact on the Lebanese investors' investment decisions.

H0: Emotions has no impact on Lebanese investors' investment decisions.

H0: Market impact has no impact on Lebanese Investors' investment decisions.

H0: Herding has no impact on Lebanese Investors' investment decisions.

# Chapter 3: Discussion:

This Chapter represents the key findings from the above analysis. The problematic of this research is the impact of behavioral finance on investment decisions in the financial markets among Lebanese investors, further to our above data and analysis we will discuss in detail how and to what extend does the behavioral bias affect the investors.

- Does overconfidence play an important role in the investment decision?

In the previous chapter, we have accepted the H1 hypothesis (i.e the heuristic bias has an impact on the Lebanese investor's decisions), however overconfidence, representativeness and gambler's fallacy were the factors analyzed in the Heuristic bias. From the above results, we can note that the overconfidence bias was the less affecting the investment decision among the Lebanese investors, while the representativeness bias and the gambler's fallacy had a higher impact. Accordingly, this shows that the investors think they can predict the outcome of their investment and they believe that the good performance of their investment will continue. These investor's actions are based on overconfidence behavior by considering many reasons. First their right choice in choosing an investment or their capabilities and knowledge helps them choose the righ investment. Lebanese investors need to improve all forms of experience, abilities, and knowledge in the capital market. These improvements are shown under certain critical conditions. New investors have a high overconfidence attitude; therefore, they will make investment decisions more active and speculative. The result of our research clarifies the results of Pradikasi and Isbanah ( 2018), Javed et Al. (2017) that proven that overconfidence has an impact on stock market investment decisions, the volume and the type of shares traded.

In fact, Tversky and Kahneman (1971) mentioned that when representativeness appears, investors tend to overvalue their skills and think they can predict the market outcome and ignore other psychological factors such as gambler's fallacy. Overconfidence is the most important standard to investment decisions as this specific bias is the pedestal of Behavioral factors. Many investors move from stock to stock or from a mutual fund to another as if they were selecting or discarding cards, they tend to be overconfident and start overtrading.

In addition, Regret aversion and optimism were the factors examined under the emotion bias. The illusion of control that the investors have over the outcome of their investment will be followed by the regret aversion as they will end up selling their winning stock too early, fearing that the market will be bearing, and prices will go down. Therefore, they might make temporary gain during this period and retain their losing stock hoping that the price will increase.

- Does market volatility affect investment decisions?

Sadeghi and Ghayekhloo (1985) described that emotions have a very high impact on every human, in his basic daily life. These emotions also affect the investment decisions among the investors. He also explained that the market is very volatile, and emotions cannot be controlled under these circumstances. The fear of losing in an investment, the fear of regretting an investment or the illusion of control during a period of crisis are all the result of the market's volatility. In fact, market volatility affects the investment decisions in many ways, for example during a period of high volatility, the investor is more likely avoid an investment or start selling his stocks in order to avoid a certain loss. In addition, regarding the herd mentality, it is something very common in our Lebanese traditions to actually spread rumors about a certain event or a certain opportunity that can be both, either something positive or negative, and therefore, the crowd will follow each other's actions. In our country's current situation, every time an external political event happens, people start selling either or buying dollars or gold. Some people start investing in the real state as they think this is the safest investment.

- Do these investors react to changes in the market? To what extend does the investor have a hold on the market.

As tested and proved in our study, and as per Kimani (2011) and Loh (2016) the impact of market factors on the investment decision is linked to the sociodemographic characteristics of the participants. More than 70% of participants are graduates or have a master's degree and most of them are retail investors and therefore they are highly affected by the herding bias. However, Institutional investors tend to have a better reaction on the financial market by doing some fundamental analysis and studies, while this factor was not studied, future research will prove this. Herding behavior is proven to influence stock investment decisions. It can be seen in this research that Lebanese investors tend to follow the actions of others and rely on collective information rather than personal investigation and fundamental analysis. They also act and follow each other's

assumptions as mentioned earlier. They reach quickly hoping to achieve higher return. Although, herding bias increases the trading volume among Lebanese investors, but it creates a certain feeling of regret in case they suffered losses in the past, this will affect their future investment decisions. Generally, Investors have a high-risk tolerance so they can adapt or react to market changes in order to achieve higher return.

On the other side, in Appendix II, we are going to find the questions that we sent to an institutional investor.

After finishing the study and the statistics of the above research, the researcher wanted to point out if the institutional investor investors would react the same as the retail investors.

Gladly, Mr. Karim Arabi, current private equity investor in the world bank, International Finance Corporation, IFC, was able to have a virtual meeting and discuss his personal experience with the behavioral finance.

Mr. Arabi, pointed out that in the institutional investment organizations, there is an Investment Decision making process in order to avoid any behavioral risk.

First of all, every investment decision or study is presented to an investment committee, where they either approve or reject the decision. The board of this committee members are not emotionally attached to any decision. They have a defensive approach, they see the empty half of the cup, not the full, they are independent members who have survived crisis, bubbles, market fluctuations and understand what a cycle is.

Institutional Investors tend to have a structural investment decision in order to prevent any insufficiencies made by behavioral decisions.

Mr. Arabi discussed a behavioral event that occurred in 2022 with many venture capital funds, there was a super hype where companies were getting valuations and there was a trend in the market and everyone was thinking that the future is bright so they were buying. Unlike his institution, where they had an opposite vision, and thought that the market was a saturated economic growth, thinking that it will fall at any day. Instead of buying, they took a short position, and became sellers. Today, when the economy became less hyped, they bought shares in the market again.

Another interesting example Mr. Arabi gave was the subprime crisis in 2008, where it was the first crisis he ever survived. With 3% increase per day, everyone's and the market's mood was positive realizing daily profits and suddenly, woke up the next day, the market was bearish, and that was his first experience of the psychology of the market.

He also added that framing is the most important factor that has affected and keeps on affecting the investors. Even in these investment institutions framing has a high impact on the investment decisions. As we mentioned earlier, the investment decisions are subject to a process where it's approved and studied by the Investment committee. However, when the transaction team is presenting the file to the investment committee, they can frame it in their own benefit and in fact, many biases can appear when showing the information.

Overall, and after finishing the discussion with Mr. Arabi we can say that behavioral biases are always present in the daily investment process. However, it can only be decreased and control by external decisions like the committee, or governmental regulations.

# Chapter 5: Limitation of this study

The survey was distributed to more than 300 people but only 62 participated. In addition, the Lebanese market is very limited to retail/ Individual investors as we do not have a capital nor financial market in Lebanon, so the institutional investors are rare. Unfortunately, the study's findings may be limited by the size and sample used.

It was very hard to be able to reach a high number of investors, many of them didn't have time to answer this questionnaire, and when they did. The researcher was already doing the analysis.

In addition, collecting data on investment decisions may be affected biases and inaccuracies as participants may respond to the questions only for the sake of responding, and provide the researcher with socially desirable responses which will have a negative impact on the statistics.

Due to technical issues in the google form, people who participated at first tend to leave the questionnaire only to have 54 participants left at the end, and due to time constrained we could have more participants.

In addition, We only had one institutional investor to answer our questions, and Mr. Arabi was located in Washington DC so it was hard to reach him at first.

# Chapter 6: Recommendation:

The principal recommendation for Investors is to make constant trials to increase their awareness and control on behavioral finance by educating themselves more on this matter. In fact, studying about these psychological factors and biases and reflecting thinking about every step of the investment process will help them achieve a better self-understanding to avoid emotions during an investment decision under any circumstance. Even after being completely aware of the behavioral biases, they are facing, they should review periodically their actions in the market. But the main question that will remain answered is if greater awareness among investors behavior will increase the market efficiency.

Behavioral finance should be tough in the academic curriculum. In the CFA program, they give a course about the behavioral finance. Also, during my master's degree, in our Portfolio Management class, we took a chapter about behavioral finance. This approach should be more developed and given a practical experience for students and future investors to be able to track and control their biases. This will help them in their future career. Hence, decision making in pressured situations won't be a challenge anymore.

Knowing what to do is important but knowing when to do and what is to be done is priceless.

# Conclusion

The objective of this research is to know the impact of behavioral finance on the investment decisions, we analyzed this problematic from the Lebanese investor's perspective.

Some behavioralists believe that the systematic errors of investors can provide opportunities for unemotional rational investors to beat the market. They believe that irrational trading creates predictable stock market patterns that can be exploited by wise investors. These ideas are far more controversial than the lessons provided above.

In conclusion, the study on how behavioral finance affects investment choices and decisions sheds light on the significant part that human psychology and behavior plays in determining investment outcomes. This thesis has underscored the significance of understanding and resolving these biases in order to achieve better investment results through an examination of various behavioral biases and their implications on decision-making on the Lebanese investors.

One of the main conclusions of this study is that people are not always rational decision-makers when it comes to their finances, even institutional investors and the professional are highly affected by these biases. Overconfidence, loss aversion, and Herding behavior are a few examples of behavioral biases that can lead to suboptimal investment choices and market inefficiencies. Investors must be aware of these biases and how they affect their decision-making in order to reduce their effects on the financial markets and enhance them.

The usefulness of combining behavioral finance concepts and ideas into investment strategies has also been underlined by this argument. Investors can create more robust, adaptive and flexible approaches that take into consideration the psychological factors driving market dynamics by using ideas from behavioral finance. To combat biases and improve decision-making accuracy, this may entail using strategies like framing, anchoring, and mental accounting.

In this study we also saw the correlation between experience, education, age and behavioral factors that allowed us to see which of these factors had a strong impact on the Lebanese investor's decision making the financial market . Optimism Bias and past trend stock had the most impact. As mentioned above, Lebanese investors are very overconfident however the less experience they had, the younger they were, the more the behavioral biases affected their investment decisions.

The study has also stressed the value of investor awareness and education. Financial organizations and professional investment centers can enable people to make more informed and logical investing decisions by educating them about common biases and their effects. To do this, it may be necessary to hold workshops, provide educational materials, and incorporate behavioral finance concepts into investment advice services.

The influence of behavioral finance on investment decisions is apparent overall. Investors can enhance their investing performance and potentially lessen the negative consequences of market irrationality by acknowledging the role of psychological biases and using techniques that account for them. In order to improve investment decision making and the development of more solid financial markets, we must continue to conduct research in this area to increase our understanding of behavioral finance and its real-world applications.

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# Appendix I

Appendix I contains the questionnaire that was shared to participants online. Also, a table is drawn to show the questions associated with each as well as the sources.

My name is Sara Masri, I'm currently pursuing my thesis at University Saint Joseph. I'm reaching out to request your valuable participation in a survey that forms a crucial part of my research.

The focus of my study is "Behavioral Finance and investment decisions". By participating in this survey, you will enable me to draw meaningful conclusions for my thesis.

To access the survey please click on the following link:

https://docs.google.com/forms/d/e/1FAIpQLSeTeVGiDWtpQ-\_1fkzk65oYwvfyTotM08y\_38cYfDyTAxDS8Q/viewform?usp=sf\_link

Thank you in advance for your cooperation and support.

# **Questionnaire:**

- 1- What's your Nationality?
  - Lebanese
  - Other
- 2- Do you invest in the stock market?
  - Yes
  - No
- 3- What is your age group?
  - 18 27
  - 28 37
  - 38 47
  - 48 60

- Over 60
- 4- What is your gender?
  - Male
  - Female
- 5- What is your education level?
  - Primary education
  - Secondary education
  - Third level education
  - Master's level education
  - PhD or doctorate
  - Other (please specify)
- 6- How long have you been investing in the stock market?
  - Less than a year
  - 1 year to 4 years
  - 5 years to 9 years
  - 10 years and above
- 7- What type of investor are you?
  - Retail/Individual
  - Institutional/professional
- 8- Do You believe that your skills and knowledge of the stock market can help you to outperform the market?
  - Strongly disagree.
  - Disagree
  - Agree
  - Strongly agree.

- 9- You feel you are experienced enough to forecast the winning investments?
  - Strongly disagree.
  - Disagree
  - Agree
  - Strongly agree.
- 10- You rely on past performance to buy stocks because you believe that the good performance will continue?
  - Strongly disagree.
  - Disagree
  - Agree
  - Strongly agree.

11- You prefer to invest in large stocks from leading companies?

- Strongly disagree.
- Disagree
- Agree
- Strongly agree.
- 12- You avoid investing in stocks that have recently risen in price over a series of subsequent trading sessions because you believe the trend is more likely to reverse?
  - Strongly disagree.
  - Disagree
  - Agree
  - Strongly agree.
- 13- You believe that investing in high-risk investment gives you a greater chance of making a gain.
  - Strongly disagree.

- Disagree
- Agree
- Strongly agree.

14-After a prior loss, you become more risk averse.

- Strongly disagree.
- Disagree
- Agree
- Strongly agree.
- 15-You tend to treat each element of your investment portfolio separately.
  - Strongly disagree.
  - Disagree
  - Agree
  - Strongly agree.
- 16- You ignore the connection between different investment possibilities.
  - Strongly disagree.
  - Disagree
  - Agree
  - Strongly agree.
- 17-You avoid selling shares that have decreased in value and readily sell shares that have increased in value.
  - Strongly disagree.
  - Disagree
  - Agree
  - Strongly agree.

18- You believe your investment would promise high capital gain.
- Strongly disagree.
- Disagree
- Agree
- Strongly agree.

19-You believe your eye for good investment gives you control on the outcomes.

- Strongly disagree.
- Disagree
- Agree
- Strongly agree.

20- You do react quickly to new information in the market.

- Strongly disagree.
- Disagree
- Agree
- Strongly agree.

21-You put the past trends of stocks under your consideration for your investment.

- Strongly disagree.
- Disagree
- Agree
- Strongly agree.

22-Other investors' decisions of the stock volume have impact on your investment decisions.

- Strongly disagree.
- Disagree
- Agree
- Strongly agree.

- 23-You usually react quickly to the changes of other investors' decisions and follow their reactions to the stock market.
- Strongly disagree.
- Disagree
- Agree
- Strongly agree.
- 24- You would be inclined to follow investment advice or ideas received during a face-to-face conversation from a friend or colleague.
- Strongly disagree.
- Disagree
- Agree
- Strongly agree.

## themes of investment behaviors - Questions and sources

	Psychological		
Themes	Factors	Question	Sources
Heuristic		You believe that your skills and	
		knowledge of stock market can help	
	Overconfidence	you to outperform the market.	Ngoc (2014)
		You feel you are experienced enough	Mumaraki and
	Overconfidence	to forecast the winning investments.	Nasieku (2016)
		You rely on past performance to buy	
		stocks because you believe that the	Aymeric Dispa
	Representativeness	good performance will continue.	(2020)

		You prefer to invest in large stocks		
	Representativeness	from leading companies.	Atinuke Bogunjoko	
		You avoid investing in stocks that		
		have recently risen in price over a		
		series of subsequent trading sessions		
		because you believe the trend is more	Aymeric Dispa	
	Gambler's fallacy	likely to reverse	(2020)	
		You believe that investing in high-		
		risk investment gives you a greater		
	Gambler's fallacy	chance of making a gain.	Atinuke Bogunjoko	
		After a prior loss, you become more		
	Loss aversion	risk averse.	Ngoc (2014)	
Drognaat		You tend to treat each element of your		
Flospeci	Mental accounting	investment portfolio separately	Ngoc (2014)	
		I ignore the connection between		
	Mental accounting	different investment possibilities	Kimani (2011)	
		You avoid selling shares that have		
		decreased in value and readily sell		
Emotions	Regret Aversion	shares that have increased in value.	Ngoc (2014)	
		You believe your investment would		
	Optimistic bias	promise high capital gain.	Mahina, Muturi,	
			Aymeric	
		You do react quickly to new	Dispa	
Market	Overreaction	information in the market.	(2020)	
Impact		you put the past trends of stock under		
		your consideration for your		
	past trend stocks	investment	n/a	
		Other investors' decisions of the stock		
Herding	Herding	volume have impact on your		
		investment decisions.	Ngoc (2014)	

	You usually react quickly to the		
	changes of other investors' decisions		
	and follow their reactions to the stock		
	market.	Ngoc (2014)	
	You would be inclined to follow		
	investment advice or ideas received		
	during a face-to-face conversation	Aymeric	Dispa
	from a friend or colleague.	(2020	

## **Appendix II**

In appendix II we can find the questions that were sent to Mr. Karim Arabi on WhatsApp a couple of days before the interview.

Interview with an institutional investor:

Name:

Job Title:

- 1- How has behavioral finance influenced your investment approach and decision-making process as an institutional investor?
- 2- Can you share some examples of behavioral biases that you have encountered and how they have affected your investment decisions?
- 3- In your experience, what are some common framing effects that can occur in the financial markets?
- 4- How do you assess the impact of media, market narratives and news framing on investor behavior and market dynamics
- 5- Have you ever noticed any specific behavioral patterns or trends among other institutional investors when it comes to decision making?
- 6- How do you strike a balance between taking advantage of market inefficiencies caused by behavioral finance and avoid becoming a victim of it?
- 7- What role does emotional intelligence play in your investment process when dealing with market volatility?
- 8- Have you implemented any specific risk management strategies or mechanics to address potential behavioral pitfalls in your investment process?

Thank you.