Research Topic

How behavioural finance impacts individual investors decisions and strategy.

Master Thesis
Geneva Business School

Master in International Finance

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Date: 08.06.2020

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Acknowledgements

First of all, I thank my family and my friends for supporting me throughout my research period. I wish to express my thanks and all my gratitude to the people accompanied me during this research.

I thank also the people who helped me and answer my questions and collect data for my research. And most particularly to our two-asset management professionals for their time and answers for our study.

Finally, I would like to thank the person who contributed to the preparation of this thesis, in particular my supervisor Dr. Mondher CHERIF Professor of finance at Geneva Business School for his availability, follow up, listening, and guiding me through this study.

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Abstract

The finance theory was built during the past five decades on the efficiency of the market, this theory permits the searcher and the market player to develop valuation models and all the process of the market are based on that theory. During the years, the policies, the democratization of the market to all the investors of the market to all the investors saw many anomalies appear in the market, pushed but the investors behaviours and their emotions. In order to understand this changes and market movement, several economist and psychologist worked on the question and the behavioural finance (BF) appears. In the evolution of this concept provides a precisions and answers to the market reactions, but as human being and psychology shows, each individual is different and by the way, no mathematical model in the valuation of stocks or in the portfolio management have been created and incorporated. But psychology and the decision-making mechanisms shows many traps in which the individuals could fall when they are investing. So, this major trend has become fundamental for professionals in the sector, but nevertheless important for Individual investors. The sudden and massive arrival of new investor in the financial market during the month of March, made us wonder about the understanding of these concepts on individual investors and their impacts. That is why we decided to make an original research answering how behavioural finance impact the investments decisions and strategies on individual investors. Quickly it was understood that the behavioural finance and what it encompasses was one major component in the decision taking for investments and the understanding of how it is working. So, to understand the impact of it, we made a research on the psychology of the investors by proposing them investment cases to analyses their reactions. The objective is to find if the behavioural finance is used and how is it used today in investments. Our research points out a major impact of the cognitive biases on the investor's reactions, showing an increase in risk taking about their investments, even for the investors familiar with the concepts of behavioural finance. To complete our research, we interviewed two asset managers about their feelings and their vision of the markets. Many opportunities of investments are coming from the investors behaviours and understanding where is an important clue for companies and individual investors.

Chapter 1: Introduction

I. topic area and research objective.

Financial theory has been built over the last 50 years on the rationality of investors and on the logic of macro-economics, the efficiency of the market. However, many years later, a new trend is changing the perception of financial principles, behavioural finance (BF). This trend is based on the study of market anomalies and the psychological biases of individuals and professional investors. These changes and influences their investment decisions as well as the financial markets. The period during which this thesis is made, is a good demonstration of the inconsistency of the market according to the current economic situation, therefore the decisions of investors. More and more people see the stock market as a new opportunity to invest and manage their wealth. Many households and companies are embarking on the adventure of the markets and without solid experience, they will probably lose money. This also creates opportunities for financial companies and traders on market inconsistencies. Therefore, through literature reviews, articles and a survey of investor knowledge and application of BF, we will provide a current analysis of BF and its opportunity in asset management. The fears raised by the current crisis, and the investor reaction we are seeing, force us to realize that the psychological traps created by the human brain are more topical than ever. The objective of this study is to provide a current update on the application of BF to individual investors and their decision making. Which brings us to the objective of this study, in which we will try to understand:

What is behavioural finance and the opportunity of using it. How individual investors are understanding and applying behavioural finance? How behavioural finance impacts the strategy of the investors?

In this section, we will look at many points, starting with the reasons that led us to conduct this study and the importance of this reflection for investors in an economic and financial landscape fraught with uncertainty and risk.

In the second part of this article, we will review a multitude of literature on behavioural finance, explaining what behavioural finance is all about, the pitfalls that investors are likely to fall into and that condition their investment decision. We will also develop some indicators that show us the current market trend and the inconsistency of investors in this framework. And to finish our literature review, a short analysis of strategies and their effectiveness in the situation this thesis is taking place, with the aim of illustrating the application of using behavioural finance.

In the third part of this article, we will develop the research and survey framework to understand the research line and help us understand the survey results. Many points that we will cover and others that we will not address will be developed to understand their importance in the survey and the limitations of our research. As we will develop our study is based on the psychology of the investors and our interpretations of it.

In the fourth part of this paper, using the survey and data collected directly from all types of investors, both individuals and companies, we will analyse the results and understand how investors make their investment decisions and what pitfalls investors are most likely to fall into, as well as their interpretation of investor behaviour in their choices. The second part of the questionnaire focuses on investors who are familiar with behavioural finance, with an emphasis on their understandings, applications and strategies around this field. In addition to our questionnaire, we interviewed two professional asset managers about his vision of the markets and the interest of behavioural finance in this period.

And finally, we are going to make a conclusion summarizing our work and our understanding of the question posed by this project, all of them giving perspectives of research continuity, potential new research directions and our recommendations to our readers on how applied and use our research in their management.

All this study does not take into account the vagaries of the market in the period when it is written but it takes place voluntarily in a period of uncertainty and where behavioural finance has a major role on the markets as we will develop it. The whole study of this document is based on the understanding and interpretation of behavioural finance in the strategy and decision making of investors.

II. Context of the research

a) **Economic situation**

First of all, this study and thesis takes place in a situation never seen before in modern history. We are going to develop a little more in depth the scope of the situation, in order to set the basis for reflection of the study and the origin of the question posed.

Since the beginning of the year 2020 the world has been hit by a health crisis on a global scale, which started in China. The spread of the virus to the world has caused a situation never before experienced in our world.

The economy has come to a standstill, forced by the authorities because of obvious health issues, with a very strong impact on the global economy. Households, businesses and government are having to manage a crisis and production losses never before seen.

Corporate earnings on a global scale are showing signs of a sharp slowdown and a decline in earnings. This abrupt halt in the economy and production has created severe tension in corporate balance sheets, prompting companies to postpone, reduce or even cancel dividend payments.

Several indicators commonly used by financiers are showing alarming signals, such as unemployment, which has risen to a record high in such a short period of time. The United States is recording the largest increase in its unemployment rate with 14.7% (Figure 1) of the labour force. From the global point of view, it is a contraction of global activity of about 3.2% this year according to the US report. Volatility, which we will develop in the next section, has also reached peaks and continues to last, in view of this, we are not yet at the end of this crisis.

Some indicators, which we will detail briefly in the literature review, show us investor sentiment such as safe havens or market sentiment indicators, and they are giving us the indication of a difficult market situation.

Companies forced to respect the containment of their staff, have seen their turnover and production decrease sharply, and in a global containment, companies have also seen their orders and supply chain being affected.

In addition, the market evolves according to the announcements and information that arrive on the market, with plans to support the economy, advancements on the vaccine front or de-confinement making for renewed optimism in the markets offset by a possible return to containment, poor economic figures, massive layoff plans, etc. Markets are balanced between investor moods and reactions.

In conclusion, the world economic situation is more than ever weakened by this sudden and long stop that is the containment. The operating and turnover losses will change the fundamental elements of the companies and cause difficulties in the short, medium and long term. The possibility of a second wave of containment is not to be ruled out and therefore does not bode well for companies and therefore the equity markets. However, as we shall see, corporate fundamentals are no longer the order of the day for investors.

b) **Context and question studied**

Financial markets are commonly reserved for the professional in the collective imagination, but reality shows that it is increasingly easy and accessible to have access to the financial market. Online banks, brokers and specialized companies, showing double-digit returns, low fees, ease of use but above all paid advice or recommendation to invest. Everything is done to facilitate access and investment.

Several articles and studies have shown that at the beginning of the year 2020, the number of stock exchange accounts opened in France has risen sharply. France known to be a country-oriented towards stone investments has known during the month of March a very strong increase in the number of trading account openings. Indeed, the newspaper La Tribune, in an interview with two international online banks, Boursorama bank and ING. In this interview, the managing director, Benoît Grisoni, of Boursorama bank, notes that 20,000 new trading accounts were opened in March 2020 alone. Julien

Schahl also shares this observation with ING bank, who reports a level of transactions 3 to 4 times higher than the average over the last 15 months, but also a significant increase in the opening of securities accounts, 6 times higher, and the investment part, ING has recorded levels 20 times higher.

In addition, a recent article by the news channel CNBC, in an article published on May 12, 2020, an analysis of the broker market and their activities makes a definitive statement. The three largest online trading platforms in the United States of America, Charles Schwab, TD Ameritrade and Etrade, recorded an average increase in the number of online account openings of around 170% in the first quarter of 2020. In addition, there is a high volume of transactions, with 27 of the highest out of 30 being just in the first quarter of this year. CEO and founder of Nexus Strategy, Tim Welsh adds that the decline in brokerage prices and the sharp drop in stock prices have boosted young investors to take the plunge to invest. But the fresh arrival of new players on the market shows great democratization of financial markets, but it also shows that these newcomers have a lot to learn. If investors are not experienced enough, then it is akin to gambling. Tim Welsh adds: *"That more you trade the worse you do. There's buy and hold for a reason and anyone who's inexperienced and is just clicking around and buying and selling based on the movements in the markets on a daily basis really have no chance to be successful."* (CNBC, 2020)

We can make a correlation between the increase in the number of securities accounts and the decline in the markets. Indeed, the equity markets have lost, at their lowest point, 40% for the CAC40 index, 30% for the SMI index (Switzerland) and close to 35% for the S&P 500 index. The drop in stock prices offers "cheap" securities and therefore an investment opportunity. However, the fall in the value of shares in itself due to a very opaque and unstable economic period caused by the Coronavirus. Investors are potentially showing signs of psychological errors in their arrival on the markets.

« *The risk comes from not knowing what you're doing...*» - Warren Bufett (CEO Berkshire Hattaway)

In conclusion, new investors arrive on the market, are attracted by the prospect of gains, due to the strong discount of securities and financial products, visibly hiding the general context of this decline. These decisions to enter the market at such a particular time show the first effect of psychology on their decisions.

III. Conclusion

In conclusion, behavioural finance brings a capital element in asset management and investment, self-understanding. But since all the years when behavioural finance has been a serious and studied stream of finance, it should, therefore, be integrated into the decisions of individuals and companies in their investments. As we will develop it in greater depth in the next chapters, behavioural finance is not to be questioned in terms of its effectiveness. However, several elements seen in the markets, behaviours and inconsistencies in the introduction lead us to believe that behavioural finance is only marginally taken into account in investors' decisions. Offering a lot of opportunities to initiate them as an important risk for the uninformed.

"The key to success in trading is emotional discipline. If it was intelligence, there would be many more winners... " Victor Sperandeo (trader and index developer)

Chapter 2: Literature Review

Introduction

The literature review is essential as it gives a summary of all the findings and theories from the subject studied. The objectives of the literature review are to make a quick overview of the behavioural finance (BF) and how is it impacting investments, from the theory side with empirical and theoretical studies. So, in this chapter, we will recapitulate multiple pieces of literatures, books and papers in the behavioural finance field.

We decided to cut our literature review on tree part, the first one we will describe the BF concepts so by developing the cognitive biases and traps that the BF current pointed out.

In the second part, we are developing the strategies and anomalies the market is composed, we will develop the strategies linked with the anomalies and the basic strategies used by the investors.

And finally, to conclude our literature review and literature research we focus on the elements that currently allow us to feel and analyse market feelings, indicators of market behaviour.

I. The components of the Behavioural Finance

a) Market efficiency Hypothesis

The Efficient Market Hypothesis (EMH) developed by Fama (1970), which appeared in the early 1970s, was at the center of financial theory for more than 30 years. Fama defines the efficient market as a market in which asset prices always reflect all available information. These assumptions exclude the possibility that an expected return based on currently available information can be generated that is higher than the expected equilibrium return on the market (Fama, 1970). Thus, the theory of market efficiency is based on three pillars of thought.

The first pillar is based on the assumption that investors react rationally, in other words, investors analyse, evaluate and make decisions rationally. In this case, emotions are not taken into account.

The second pillar is based on the irrationality of some investors, but the decorrelation and randomness of their transactions cancel each other out. In this way, the value of assets remains unchanged.

Finally, the third pillar is the arbitrage between irrational and rational investors. Indeed, irrational investors meet rational investors on the market, a trade-off occurs naturally to return to a normal valuation.

In addition to the market efficiency pillars, FAMA distinguishes three degrees of market efficiency.

- The first is the weak form efficiency in which market information, the historical price history, explains and is incorporated by the market into future returns.
- The second is the semi-strong form (semi-strong efficiency); it assumes that public data on firms, balance sheets, mergers, and redundancies are taken into account in the asset price. It is thus impossible to generate a higher return on an asset.
- And finally, the third form of efficiency is strong form efficiency, in which all public and private information is incorporated in the asset price. Thus, in this case, it is in no way possible to take advantage of hidden information, such as through insider trading because all the information is available on the market and incorporated into the asset price.

Investors objectively analyse multiple scenarios and give them probabilities, which are themselves revised by new information, according to Bayes' probability rule. The Bayes' probability rule describes the probability as an event and simply explained, the theorem of Bayes is the simple way of findings a probability when you know other probabilities. Moreover, they can choose the best asset allocation after considering all possibilities.

One of the most widely used asset-pricing models is the Capital Asset Pricing Model developed on the basis of Markowitz's expected utility theory and taken up by Jack Treynor (1961). This model indicates for each risky asset what its required rate of return should be. The models developed are based solely on market efficiency theory, such as the *Capital Asset Pricing Model.*

According to this theory, investors are reduced to "supercomputers", the analysis of financial, management, and share price elements are the only criteria that condition investors' decisions. The achievement of a certain ratio and level pushes the purchase decision and the investment strategy.

Investor emotions are therefore virtually absent from classical theory, as they are only represented by the risk aversion coefficient, which determines whether the investor is rather hostile, neutral or risk-averse.

b) **History and the theory of behavioural Finance**

The theory of efficiency, which has supported and continues to support the foundations of today's finance, laid the foundation for the calculation of asset values. The forerunner of market efficiency theory, FAMA, posited that stocks operate in a market where the information available in the market and the stock price very accurately displays the intrinsic value of the stock and that any new information entering the market causes the asset price to react instantaneously at its fairest level.
In addition to this first theory, FAMA has supplemented it with the random market hypothesis (RWH). It developed the theory that the price of a share is no more predictable than a series of random numbers (FAMA, 1965).

Despite the progress and advances that this hypothesis has been able to bring, however, it has also shown its limitations. Empirical tests invalidating the predictions of the theoretical model have been accumulating for thirty years, to the point where researchers are tempted to relax their assumptions.

As a result, the markets have over time shown signs of irrationality and inefficiency. The emergence of numerous market anomalies such as calendar anomalies, valuation effects or Momentum effects, which we will develop later in our research, have created a research movement to understand the reason for these effects.

Anomalies are observed at both the individual and aggregate level. At the individual level, it appears that investors' portfolios are significantly under- and poorly diversified and display largely excessive turnover rates. Companies, for their part, regularly pay dividends, whereas the theory is that they prefer shares buybacks.

In addition, valuation anomalies are not uncommon since some asset classes have structurally too high returns given the low risk they carry or their low correlation with other assets. But we will detail this a little later.

This ever-growing list and the discoveries of economists and psychologists on the decisions of individuals have in the 1970s saw the emergence in the current, called behavioural finance that has ceased to be marginal and to integrate the ranks of the largest institutions on the planet. This trend was consecrated in 2002 thanks to the Nobel Prize winner in economics, Daniel Kahneman, whose work and research in this field has been the cornerstone of behavioural investment theory. Professor Daniel Kahneman is an imminent psychologist recognized for his Nobel Prize and his studies in the field of economics, but also thanks to a vast stream of heuristic studies, studying the rules of common sense that allow individuals to make quick and satisfying decisions.

Following the logic of finance and its evolution, the appearance of a new mathematical model of asset pricing taking into account behavioural finance should eventually make it disappear because it is integrated.

The theory of behavioural finance has long been decried by proponents of the standard approach, before imposing itself through the strict methodology that allows it to avoid the pitfalls of intuitive psychology and the bridges between individual psychology and the aggregate behaviour of the markets. The emergence of general asset valuation models should tend to merge the two currents so that behavioural finance no longer exists, strictly speaking.

c) Behavioural finance Biases and Traps

Behavioural finance is not only about emotions, or behaviours but also about many psychologies. Every human has different ways to answers to the same question, many components are part of the calculation as the education, past, fortune etc. Many specialists and many searchers were analysing the behaviours of the market, since the anomalies and inefficiency market were identified, the search to the greater returns push the research to understand and analyse the investors, to potentially bit the market at his own game.

Therefore, the last 30 years of research on the investor's behaviours, have brought to light many psychological biases and effects which are potential responses to market inefficiency. These have been uncovered by extensive empirical and theoretical research. Adam SMITH, a pioneer in economic discovery, was the first to discover key psychological concepts related to finance, such as loss aversion and overconfidence.

Since Smith's discoveries, finance has continued to evolve, creating a framework for classifying recurring and likely investor errors.

Six major classes of trap that investors are most likely to fall victim to are: Perspective theory, heuristics, misperceived randomness, herding bias, overconfidence, and certainty and underreaction. In addition, all these major traps are composed of many under reactions and behaviours.

The behaviours and pitfalls that we will detail in the next subchapters are intended to show the psychological notes that investors are subject to when making investments and investment decisions. The understanding of these notes will give us the research and development focus of our questionnaire research, to know if the investors we question have an understanding of these principles, if and how they integrate them in their investment decisions.

In this part, we will explore the psychological biases make up BF and detail the work of our predecessors, in order to make an overview of BF and thus develop the results of our research and discover the impact of BF on individual investors.

d) Heuristics

The human body is of a complexity rare in this world and the functioning of the human brain is organized by numerous systems of reflection, defence, the logic that allow it to permanently keep control of its functioning. These mechanisms have an influence on the decision making of the human brain as each human being has been able to realize throughout his life through expressions of these mechanisms by emotions, anguish, fear, euphoria, joy and many others.

Heuristics are shortcuts that our brain develops to simplify decision making and partly obliterate feelings that can impair our judgment. These shortcuts are becoming more and more common and used in today's fast-paced world.

The heuristics biases appear in the ‘80s with the works of many economists, like Statman and Shefrin who explain the investor preference for cash dividend in 1983. The objective of this paper was to understand why the investors are more

Professor of finance and eminent economist David Hirshleifer (2015), the professor develops the fact that heuristics in investment can be absolutely unconscious elements of investors, as well as elements consciously taken into account by investors. Professor Hirshleifer adds the notion that investors are likely to make the mistake of easily conforming to their habits and confidence without asking too many questions. Professor Hirshleifer's point of view wants to show some mechanism of decision making through possible high self-confidence and habits, like any common and recurring decision in life, the answer becomes automatic through experience and not reflection.

In addition of that, the German economist Ulrike Malmendier (2011) said that the investment decisions can be affected by the past life experiences, and they can become unconsciously plant in the investor decision and strategy by becoming a heuristic. Heuristics present many benefits in life but in the financial world and investments, they can have contrary consequences.

Presently, economists and searchers in the behavioural finance field have identified a few heuristic biases. Andersson Maria, Ted Hedesstrom and Gärling Tommy (2014) found support for the heuristic, in which the investors are following the majority because the majority is always right. The research of the three professors is based on three experiments to test the influence of the good prediction of the majority, increase the influence of the majority on the investor decisions. Many investors with a low level of study in finance are attracted by important movement on the market and that can cause an investor falling into the trap of herding, which we will be discuss later part, in the cognitive bias of herding.

Heuristics are therefore impacted by the past of the investor and of any person who has to make decisions in the future. In these criteria, good past decisions and successes directly influence future decision making. Confidence in oneself and in these decisions can alter the investor's judgment. Yale University Professor James Choi and Harvard University Professors David Laibson and Brigitte Madrian developed this hypothesis in 2009. In this paper, the professors show that investors can generalize their past performance and integrate it into their future decision-making.

Everyone is prone to be impacted by the heuristics we have consciously or unconsciously created for ourselves, knowledge of these psychological biases in decision making can improve decision making. Unconsciously, every person is using this heuristic in his personal life, but as explained by the different studies explained earlier, these heuristics represents potential mistake in the decision making, so a better comprehension of these processes can optimize the decision making.

e) **Prospect theory**

Every human being has a way of interpreting an event, we all have different degrees of reaction. We often tend to appreciate the positive elements more than the negative ones. A very simplistic example: if we receive a coin worth 1 euro, we are much happier than if we were given 2 euros and then taken back 1 euro.

This theory was developed by the American psychologist and economist, David Kahneman in 1979, who won the Nobel Prize in Economics in 2002 for his work and this theory, the foundation of behavioural finance. The theory of perspectives develops the fact that when faced with a risky choice but leading to gains, investors have a strong aversion to risk and therefore prefer less risky but less rewarding solutions. On the contrary, when faced with a risky choice leading to losses, investors seek much more risk if it allows them to reduce the loss.

According to Jordan Bradford, professor of finance at the University of Kentucky, in his book "Fundamentals of Investments: Valuation and Management (7th ed.) "the main thesis of the perspective theory is that individuals focus on changes in wealth, rather than their overall level of wealth.

There are four main biases that can explain perspective theory: anchoring, loss aversion, executive dependence, and mental accounting.

Anchoring. Anchoring occurs when an investor follows the price of their investment based on a reference point for that same investment, the purchase price of a security. The investor, therefore, bases the value of these gains or losses on this reference point (Duxburry, 2015).

The Nobel Prize in Economics, David Kahneman and Tversky in 1976 in an article entitled "Judgement under uncertainty: heuristics and prejudice", conducted a study to prove the action of heuristics but also on the anchors that the brain uses for decision making. The study consisted of a graduated wheel from 1 to 100 which will be rotated. Then the subjects of the study had to answer the following question: what percentage of African countries in the UN? - D. Kahneman and Tversky found that the number drawn by the wheel at random influenced the subjects' answers to the question. When the wheel was out of 10, the average response of the subjects was 25% but when the number was out of 60, the average result increased to 45%.

The results of the study showed that the anchor points that the brain can attach, and randomly in the case of the study, vary the response and reactions of the subjects. In the world of finance, in particular, anchoring creates a "focus" on a reference point of an investment product to evaluate these losses and gains.

In the financial world, investors rely on relevant figures and statistics on financial companies and products. But anchoring is also a source of deception in investors' decisions. For example, some people invest in heavily discounted companies, such as those on sale, within a short period of time. In this case, investors are anchored on the last highest price, which "proves" the opportunity to make a good deal. But price movements of a product are often due to changes in the product's fundamentals, which are not necessarily taken into account by all investors.

Changes in liquidity can benefit investors, but can also lead to errors in investor decisions. Anchoring is a very simplistic trap that investors are all likely to fall into.

Mental accounting. Not all people think the same way, but all individuals have a sense of priorities and the importance of things. It is fair to say that each individual classifies events and results in an order of importance that is specific to each one with subjective criteria and that often proves to be inefficient.

In this field, the American economist, Richard Thaler, developed this concept in the 1980s after the work of Tversky and David Kahneman (1979) on the theory of perspectives. The concept of mental accounting is, by Thaler (mental accounting matters HR Thaler 1999), described as the set of cognitive operations used by households and individuals to organize, monitor and manage financial activities. These activities consist of allocating budgets, savings, bank accounts, and managing finances to meet household goals and needs. An individual's education, experience and needs are all criteria that influence financial decisions and management. But some choices are made despite common sense.

In other words, mental accounting is the tendency of each individual to compartmentalize his or her money into separate, non-interchangeable accounts based on subjective criteria. Separating money allows for simplified decision making and evaluation of results.

Richard Thaler, in his 1999 article, states that mental accounting consists of three essential elements:

- The usefulness of the transaction
- Budget compartmentalisation
- Frequency of assessment

The utility is the first factor on which the individual relies to determine his or her mental accounts. From utility, he will determine if he should buy, what he should buy and how much. From utility, he will also evaluate the results of his operations. In the case of an investor, the usefulness of the transaction is guided by the diversification, the asset allocation, in relation to his risk but also to the earning potential analysed by the investor.

Budget compartmentalization is the labelling of money, Thaler explains that money is usually labelled at three levels, current expenses, wealth and income. For an investor, budget compartmentalization is like asset allocation in his portfolio, allocating sums and volumes to securities in order to perform.

And third, the frequency of assessment varies from one individual to another, but it reflects the way in which the individual aggregates the assessments of the compartments. The segmentation directly influences the behaviour and decisions of individuals. In investment, one day's work can lead to decisions that are detrimental to an entire portfolio due to a day of intense stress.

Considering an anecdote from the economist RH. Thaler (1985): *"Mr. and Mrs. J have saved $15,000 toward their dream vacation home. They hope to buy the home in five years. The money earns 10% in a money market account. They just bought a new car for $1 1,000 which they financed with a three-year car loan at 15%".* The couple will deliberate lose value in their action.

The decision of this household is to favour the purchase of the house and therefore the savings planned for it by not touching this money for the purchase of the car for which they will pay much more than the interest income from their savings. All this to explain that the actions of individuals in mental accounting are characterized by the importance that the individual gives to each account.

In the financial markets, mental accounting means that the investor is inclined to consider each element of his investment portfolio separately, which can lead to under-optimisation of performance. Possible interactions between stocks are not taken into account. The investor may thus acquire risky securities, and thus unbalance the risk on the return, or even acquire correlated securities (same sector of activity) and thus impact his diversification.

Loss aversion. Psychologically, individuals hate to lose, but in fact, we can say that individuals hate to lose more than they love to win, but losses are doubly difficult. The capital loss is difficult to sustain, but moreover, self-esteem does not go well with losses. Losses force individuals to question themselves, which can lead them to make decisions, with the aim of restoring their self-esteem and regaining their equilibrium, which can be detrimental to investor strategies.

Still following the theory of perspectives, Kahneman and Tversky (1979) developed the idea that individuals value their income and loss according to an "S" curve. (Figure 2). The curve, therefore, has a positive concave part and a negative part at the (0) convex reference point. The curve, therefore, represents the value given by investors to a gain or loss. The gain that portfolio security can have, say 15%, is a source of great pleasure for the investor, but at this stage, the fear of losing this gain tends to cause the position to be sold. In the case of a stock that the investor has held in his portfolio for a longer period of time, the prospect of an additional 10% gain has a much smaller impact and therefore has much less influence on the selling decision.

In the case of a 15% loss, there is a lot of discomfort for the investor. The investor keeps the hope of a recovery of the stock and keeps the position despite all indicators are in the red. This non-acceptance of the loss means that the losing position has a major impact on the portfolio and that any decrease in the position will have a further impact on the position. This brings us back to the conservatism bias and the disposition effect, that we will develop later on, which is less important to account for the adage: *"Not sold - Not lost*". Grinblatt and Han (2001) have shown that prices can under-react to information when investors are subject to these biases.

Loss aversion is a psychological trap of hope, as investors cling to the fundamentals of their decision to buy the position, and do not accept the questioning of their decision at the time of the loss, the hope of balance or gain winning.

In conclusion, an investor prone to this psychological trap could accentuate his loss or not optimize his gain. For investors, which this study has taken as an example, are possibly inclined to this trap which could result in losses on their portfolios.

f) Overconfidence

Another psychological error that investors are prone to be overconfident. This behavioural bias is probably the heuristic most validated by empirical studies. This psychological bias is widely visible among individuals who believe they are better than average car drivers.

Terrance Odean, in his article for the Journal of finance in 1998, entitled "Volume, volatility, price and profit when all traders are above average, suggest a literature review of all the studies on overconfidence". In his study, Odean, questions a large panel of people on simple questions and others requiring more reflection. The point that emerges from all these studies is that subjects are prone to overconfidence the more difficult the questions are. But on the contrary, in the very simple questions, the subjects show a lack of confidence.

The effects of overconfidence are manifold and can cause investors, who are subject to this bias, to feel that they understand the market and are able to anticipate its short-term fluctuations, even in extreme circumstances. In this sense, the Yale economics professor and economist Robert Shiller made a study, through the note of a questionnaire in 1987, the week after the financial crash, which focused on the level of an expected market rebound. The responses from this study shed light on investors' understanding of the market, as the responses show optimism for 29% of those interviewed. However, these same people confirmed that their presentiment was not supported by objective elements, but clearly by their intuition. This suggests that not all market indicators and more personal signals should be used to make a decision.

In addition, the American professor and economist David Hirshleifer (2015) has stated that increased knowledge of a certain stock can lead the investor to make decisions by hiding certain parameters, because "he knows the stock better". To this, the professor's work shows that excessive confidence leads to poor returns but also to a lack of diversification, as high confidence in a stock pushes investors to take big bets on the stock. This work shows us the problem of optimizing portfolio returns, due to different results of overconfidence, such as over-trading, selective memory, or self-allocation.

Excess trading, was studied by Odean (1999) in a study on investor portfolio turnover in 1997, and the figure that emerges from this is 75% portfolio turnover and thus transaction costs 1.9 points on average of return annually. This effect is currently increased tenfold by access to online brokers to further increase the buying and selling trend. Odean in 2001, resumed its first study and obtained an increase in portfolio turnover to 90% on average annually, only 2 years after the use of online brokers, but with underperformance of 3.5% per year. What we can learn from the excess of trading is that self-confidence, provokes quick decision making, but too many transactions impact the return of investors' portfolios due to brokerage fees.

A second result is a selective memory, or **confirmation bias**, which causes investors to look for information to support their analysis and decision. Conflicting information or information that calls into question the decision is partly ignored, avoided, or diminished. The brain, therefore, seeks to reassure its judgment and analysis. This is demonstrated by the work of the psychologists David Dunning and Justin Kruger in their theory called the Dunning-Kruger effect or the confidence effect. The Dunning-Kruger effect shows that people who are less qualified in a field overestimate their skills. Both researchers attribute this meta-cognitive bias to unskilled people, which prevents them from accurately recognizing their incompetence. Following Dunning-Kruger's theory, it thus shows that the experience and skills of investors have a direct influence on the ability of investors to fall into cognitive traps.

And finally, the last resulting in **self-attribution**, this bias is manifested by attributing the success of an action by its expertise and justifying failures by chance or market elements. This bias can lead the investor to have too much confidence in himself and thus take more frequent investments but above all riskier or even speculative. Mostly, the investors who have a good series of winning, are more prone to fall this bias of over-confidence.

In conclusion, over-confidence in itself allows for an improvement in decision making but also an unawareness of these capacities to control markets, which are by definition not controllable because they are random. Confidence in one's judgment creates a shortcut in decision making and has an even greater impact on the investor.

g) Misperceiving Randomness

One mistake that many investors make is to look for and read a lot of information and attribute this information to market fluctuations, in order to attribute a cause to a movement. This is done through a sense of market logic that tells us that any market reaction comes from the information or a change in fundamentals.

The first to discover this trap was Kahneman and Tversky (1979) who called it the **representativeness heuristic** in their studies, where subjects were tested on the prediction of future outcomes based on random past data. Economist Robert Shiller (2003) adds that the human mind is a research process that can work against itself. In predicting future outcomes based on the study of past data, the mind does not take into account the low probability that the trend will continue.

In conclusion, investors who are not likely to fall into the trap of a lack of perception of randomness run the risk of biased reasoning, or of justifying random market movements and thus making decisions biased by its findings. In the current economic context, market rebounds are by logic and analysis of random information; many elements try to justify upward market movements, while all economic indicators present risks, declines and tensions. In other words, the desire to understand a movement biases our judgment of it and can lead us to make inconsistent investment decisions.

h) Herding bias

Investors are constantly being fed investment ideas from a multitude of sources such as the media, brokers, magazines, websites. Not being able to know, analyse and master the fundamentals of all companies, investors may be tempted to invest in unknown securities but present them as much better opportunities than those held in their portfolios. Lack of personal decision making, introspection of information or lack of knowledge coupled with the prospect of gains and the fear of missing an opportunity, increases investors' decision making by following the mass.

A perfect example of herding behaviour is the period of the internet bubble in the late ‘90s. A major part of Venture Capital and private investors invested in internet-related companies even though many of them had no business model at that time.

In Bradford Jordan's book (2015), he develops that investors fall into the cognitive trap of sheep-like behaviour simply by following the investment decisions of those around them. One of these examples is taken from Jim Cramer's American television show "Mad Money" on CNBC. In this show, Jim Cramer dissects investments and gives advice on buying a stock, without bringing any new information than what is available on the market, and the result is representative of herding behaviour, the stock price rises sharply in the following days.

In conclusion, herding behaviour represents a great risk for investors with little experience or a lack of training in the investment field. People falling into the trap of this behaviour make decisions to buy security but do not understand why. In addition, overconfidence in the trend and the advice, as well as the sudden rise in the share price, reassures investors that their decisions and the advice were the right ones. This biased understanding does not allow them to understand when to sell their positions and thus potentially make them hold a position for too long or sell it too early. Again, as the “best investor in the world”, Warren Bufett said:

“The risk comes from not knowing what you're doing...”

i) <u>Over and Under-reactions</u>

The financial theory assumes the informational efficiency of financial markets, i.e., markets anticipate and rationally govern with the information available to the market. However, a number of anomalies remain unexplained, particularly with regard to the response to corporate earnings information.

Two behavioural finance hypotheses have been developed to address this anomaly, the over-reaction of investors (Debondt and Thaler 1985-87) and the under-reaction of investors (Titman (1993)) to market information.

Over-reaction – Overreaction is the behaviour of investors who invest in information beyond what is reasonable. Debondt and Thaler (1985) in their empirical study, both economists found that investors overreact to bad news. The study of Debondt and Thaler is based on the data of New York Stock Exchange (NYSE) during the 50 years of data, and he creates two portfolios, a winner composed by stock who perform the market and a loser one composed by stocks who outperform the market. The main findings of Thaler show that the loser portfolio is outperforming the market by 19,6% on average and the winner one is earning 5% less than the market on average. The results of their study, show that in violation of the Bayes’ rules, people are overreacting to unexpected news events. This overreaction made a reversal effect on the winning stocks (trendy), and the performance measured on the loser stocks, is that 36 months after the portfolio creation, the losing stocks are winning 25% more than the winner stocks, taking in account the risk. In conclusion, the overreaction of the investors is fuelling the trend on stocks and potentially not giving better performance to follow the trend of the market.

Under-reaction – Under-reaction is the opposite of over-reaction, with investors under-reacting to information and adapting their strategies based on past estimates and analysis. This under-reaction can lead to losses. (Titman 1993). The research of Titman is focusing on buying the stocks who performed well in the past and selling the stocks who performed poorly in the past. He based his analyse on the holding period between 3 to 12 months. The main findings Titman finds that the investment strategy he analyses is making greater returns by holding the stocks 6 months by 12% per year on average.

But investors holding the lines too long, sees their returns reversing, and the underreacting on the changes on the company's income returns.

In conclusion, over, or under-reacting are non-rational biases in our behaviour to information. Over-reaction leads to over-pricing, which can turn around, but conversely, under-reaction fails to optimize returns. A strategy that we develop in the next section, the Momentum effect, will show us how to take advantage of these anomalies.

j) Conservatism bias

Conservatism is a bias that consists of underestimating new information and giving too much importance to old information. Individuals tend to undervalue a situation based on new information and over-rely on old beliefs (Edwards (1966)). This bias can be also described as the trend of the investors to overvalue the information confirming their opinion and undervalue the information negating their opinion. This behaviour may be adopted out of aversion to change and the uncertainty that accompanies it. It may also result from a reluctance to admit mistakes, wanting to hold on to opinions at all costs. The result is that some assets in financial markets will be undervalued while others will be grossly overvalued.

In order to describe in more simple words, let's figure out this example, an investor who has just bought securities receives information that is inconsistent with his or her choice. He will then select the information that comforts him in his buying decision.

So, the conservatism bias presents an important risk for the investors and this bias validates and further complements the overconfidence bias, which can lead to errors of judgment and potentially a non-optimization of returns and in the worst cases of capital losses.

k) Biases and traps conclusion

In order to conclude our review of the literature on behavioural finance and more specifically on the components of this stream, we have developed the fundamental elements of behavioural finance. The studies of the psychology of investors and the errors that this leads to in the financial markets and more generally in the management of their portfolios. Indeed, we have demonstrated through empirical and theoretical studies the pitfalls of psychology that all investors and humans are predisposed to follow that can lead to errors in the decisions we are led to make in our lives or more particularly, in our case, investment decisions. Several traps are most logical and our simple life experience does not allow us to get the upper hand on these simple reflections. But in this first part of our study, we show that cognitive biases are crucial in portfolio management and decision making. Of course, each individual governs each decision differently, and each individual's experience, education and character influence decision making. But these principles cannot be understood by everyone without studying them, because we do not have the necessary hindsight to understand the errors made by our own decision-making system, our brain. Thus, our review of the literature on behavioural finance has provided us with a lot of valuable information on investor psychology. The most common herding trap is the under-understanding of our skills and our analyses for the benefit of unknown people, but to whom we give a more legitimate and higher level than ourselves, as well as blind confidence in our decisions. On the other hand, a high level of self-confidence is a major source of error in investments. Questioning one's choices allows us to understand our mistakes and thus evolve and not make the same mistakes again. The crucial point that emerges from our study of psychological biases is that heuristics allow us to make decisions but avoiding many logical elements out of greed or fear of missing an opportunity pushes us to make potentially trapping decisions. Not understanding what we do blocks us in the reaction to take and thus many investor portfolios suffer capital losses. The online broker, Etoro, announces that 75% of the accounts of individual investors are losing money. A greater understanding of our psychology combined with good fundamental and technical analysis will lead to better decision making.

II. Behavioural finance strategies and anomalies.

Strategies

In this part we will go through the strategy used by the individual investors in their common form, the objective is to make a comparison between the standard strategies used by everyone and the strategy applying the behavioural finance. All the strategy we will describe are changing and possibly taking in account the behavioural finance in a different way and that’s what we will explore in this part.

a) Passive strategy

Passive strategies consist of simply investing in stock market indices, such as the CAC 40 or the S&P 500. Passive strategies are the most common because they are low-risk as investments seek to track indexes through ETFs (Exchange Traded Funds) for example. ETF are securities products that try to replicate the performance of an index. This type of strategy is perfect because it is not very time-consuming and it is not necessary to have knowledge of financial markets for it to be effective.

The strategy consists of investing through investment products that replicate the price of a stock market index, such as ETFs or trackers. This strategy allows you to take no more risk than the market. Simplicity beats complexity 90% of the time (Figure 3). In addition, geographical and underlying diversification allows you to reduce your risk.

Within the framework of the passive strategy, behavioural finance is important when making purchasing decisions. Indeed, understanding the general framework and investor trends, especially in times of crisis and when indexes have fallen sharply, will allow investors to probe the timing of market entry.

b) Active strategy

Active stock market strategies, known as active strategies, are designed to select securities wisely in order to obtain the best return over the benchmark. A good stock selection allows you to beat the benchmark, but these strategies can also be riskier, require more time and additional skills. Three types of strategies stand out:

Value investing – a strategy devised by the famous Benjamin Graham (1949), which consists of driving out companies whose prices are heavily discounted due to periods of crisis. The selection of companies is based on their intrinsic value. This strategy completely obstructs market movement in the decision to buy a security. The disadvantage is that the price of a company does not mean what is an opportunity, many elements are to be taken into account to avoid making mistakes. This strategy therefore represents the optimal strategy, but the markets show meanings of the evaluation of the companies which do not allow to specifically define a good price in the purchase of a title.

Growth strategy - So-called "growth" strategies are the exact opposite of "value" strategies. Here we do not take into account the valuation of a company at all and we do not try to buy on sale. On the contrary, this strategy seeks to invest in the hottest companies of the moment, those that are experiencing rapid and massive growth in their profits. The strategy focuses on two elements, the growth of the share price and the growth of profits. Some "major" growth stocks of recent years are Amazon, Google, or Apple for example, and the profits made by those who invested in them are really huge.

Yield strategy - In contrast to the two previous strategies, the price a stock is quoted on the market is of secondary importance here, the objective of this strategy is simply the distribution of dividends paid by the company. These are constant and positive. The objective is to accumulate and reinvest corporate dividends or simply investors live on the dividend they receive.

The current economic context has directly impacted the strategies we have just described, both positively and negatively. Lower share prices are opening up opportunities for value investing and growth strategy investors. Conversely, yield investors have been more impacted than others, with many companies cancelling or reducing dividend payments for the year 2020, not to mention capital losses. Not yet out of the crisis, investors have already been buying “cheaply”, as detailed in the introduction. This rapid or even precipitous reaction brings us back to the issue of this document.

Actively managed strategies therefore potentially offer more attractive returns but also, and above all, higher risks, as we will see with a case study in the next section. Active management in the context of behavioural finance corresponds to the integration of these concepts in the selection or management of the portfolio, unfortunately, these concepts are not applicable to the mathematics, but only psychologically. Different ways of using behavioural finance are possible, as we will detail shortly.

c) **Behavioural strategy**

Behavioural strategy, as its name suggests, is an investment strategy that integrates investor behaviour into the management of a client's portfolio or a fund.

Several solutions are possible in the integration of behavioural finance into the investment strategy, as demonstrated by JP Morgan Asset Management's fund management. In an article published in 2011, JP Morgan Asset Management gives its recipe for success in the management of these funds by applying behavioural finance in their selection of value and growth stocks. JP Morgan AM has formulated three ways to achieve capital gains:

- Higher yield potential – exploiting price anomalies resulting from irrational investor behaviour
- Consistency - take advantage of repetitive and predictable patterns of behaviour.
- Diversification – low correlation with traditional investment funds based on fundamental criteria.

Moreover, in an analysis proposed by DOURET Arnaud (2015), he analyses the application of behavioural finance in the management of professional funds, a fund of the private bank Degroof Petercam. The objective of his work is to analyse a fund managed with behavioural finance and compare it to its benchmark index. To do so, he analyses many performance indicators and comes to the conclusion that the fund analysed outperformed its benchmark index.

In DOURET's work, the study of the investment fund of the Degroof Petercam bank, the analysis of the fund's ratios led him to the conclusion of his study. Firstly, the fund shows higher returns compare to his benchmark, Over 10 year perform almost the same at the benchmark, with a performance of 35% for the fund and 39 for the benchmark, over 5 years, the fund performs 10% higher than the benchmark, and over 3 years it performs 7% more than the benchmark at 57%. Generally, the fund is performing well if we just see the fund yield.

But to go further, the Sharpe ratio was created to help investors the returns of a portfolio to his risk. The ratio is calculated by the average excess return of the risk-free rate per unit of volatility, no need to go further. The objective of the portfolio is to obtain the highest possible ratio, in order to maximize the risk/return. Thus, the analysis of the investment fund since its creation gives a Sharpe ratio of **16%.** To conclude, this indicates that the risk taken does not compensate for the returns obtained over the period. Depending on the period analysed, the majority of the data show an equivalent or even lower ratio than the benchmark.

In addition, the work looks at the Treynor ratio, also called the Reward-To-Volatility ratio. This ratio a variant of the Sharpe ratio discusses earlier, that is a metric to measure the excess return earned on the risk taken on a portfolio. In the same way as the Sharpe ratio, the objective of this ratio is to maximize it in order to generate excess returns. Since the fund's inception, the Treynor ratio has been the same, and over a 5-year period, the ratio has outperformed the benchmark by 1%, but over a short period of time, the ratio has underperformed the benchmark by around 4%.

To complete the portfolio analysis, Jensen's alpha is used to determine the expected theoretical return measured by the CAPM. Thus, the higher the alpha, the higher the return will be compared to the application of the CAPM, a measure that does not take market behaviour into account in its calculation. Thus, Jensen's alpha since the portfolio's inception in 2002 is 2.82%, over 5 years it is much lower at 0.91%, but over the last three years, the alpha has increased to a level of 5.9%. In this case, the alpha thus shows that the portfolio is performing as expected by the CAPM calculation, so market anomalies offer potential gains or higher returns.

In conclusion, portfolio management using the behavioural finance approach offers the potential for improved performance. But as DOURET's work shows us, even with better returns, the risk taken for active management including behavioural finance does not give a significant advantage in improving performance. Many asset management companies use the principle of behavioural finance in their asset selection or portfolio management in order to optimize their performance or simply select securities according to market trends or behaviour.

In addition, the work of Marina Nikiforow (2010), on the influence of behavioural finance learning on professional fund managers. In particular, Marina's work focuses on comparing trained and untrained managers on their perceptions of markets, their choice of information and their strategies. Her research is based on a questionnaire with more than 100 German professional fund managers. The results show that BF training increases the perception of psychological bias in others as well as reducing dependence on colleagues and other actors. However, the conclusion of her work shows that simple BF training is not sufficient to significantly affect the behaviour of managers, but integration is necessary.

d) <u>**Strategy conclusion**</u>

Conventional investment strategies are all based on the rationality of the markets as shown by the Capital Asset Pricing Model. But as we have been able to demonstrate during the chapter on behavioural finance, the complexity and the many psychological biases that investors face, modify and vary prices. In this section, we have detailed the basis of strategies, including those employing behavioural finance, and these results. The performance shown by Douret's study (2015) shows the effectiveness of the use of BF in asset management but also reveals many points on which the application of behavioural finance presents risks. Several ratios such as Jensen, Treynor and Sharpe show us that despite the fund's superior returns compared to the benchmark, the returns of the fund do not compensate for the risk taken. Thus, the integration of behavioural finance into portfolio management requires active portfolio management in order to continuously adapt the portfolio to market behaviour. As a complement to investment strategies, the work of Marina Nikiforow (2010) sheds light on the importance and impact of behavioural finance in the world of asset management professionals and shows us usefulness personalised by managers but a relative application in fund management. Thus, his work counterbalances the communication and management work of the Degroof fund with a global view of the impact of BF in professional asset management.

Anomalies

a) Introduction

Beyond the conventional strategy and application of behavioural finance in asset management, anomalies also represent investment opportunities and thus take advantage of them to optimise returns. Please note, these anomalies can represent opportunities but mainly represent risks. In any case, these anomalies and strategies that we will describe can be taken into account as investment advice.

During the 1980s several theorists tried to question the theory of market efficiency pointing out the anomalies that call it into question. After detailing the biases and psychological traps that investors are prone to fall into, we will review the market anomalies that behavioural finance has highlighted.

b) High volatility

The economist Robert Shiller (1981, 1984) focused on the relationship between stock price volatility and dividend fluctuation. According to financial theory, markets react normally to an announcement, so Shiller took the variance of a stock's price relative to the variance of the intrinsic value of the stock. The conclusion of this study shows that investors over-react to announcements because price volatility is much higher than the intrinsic value of companies. This calls into question the efficiency of markets but also the ability of investors to know the limit of a movement.

In our case, high market volatility is a source of risk in investments because the assets variation is much greater than in times of normal volatility. In addition, high volatility is also used as an indicator of market fear. Thus, volatility can be used in several ways, the first and least risky is the measure of the level of risk in the market and therefore high volatility will be an indicator of market danger and therefore flight from the markets or hedging of these positions is the most normal reaction expected. The second use is reserved for insiders and/or reserved for short term investors, such as scalping strategy. Investing in times of high volatility offers potentially higher returns but as a consequence of the much higher risk.

c) **Momentum effect.**

The Momentum Effect is the tendency of stocks to keep the same returns in the short term. Indeed, stocks that have had positive results in one period tend to keep those good results in the next period and vice versa. In this logic, Momentum is also a strategy that consists of investing in companies that have had positive results in the short term and selling stocks that have had worse results in the opposite direction.

The Momentum effect was discovered through the work of finance professor Sheridan Titman (1993), who analysed the performance of this strategy. But the study also shows that returns turn around in the medium term (reversal effect).

The Momentum effect also contributes to rising prices and the formation of speculative bubbles, which are self-fuelled by the purchase of securities that outperform the market and the sale of underperforming securities. Investors, preferring "to be wrong with the market, rather than right against the market", continue to invest in these securities whose prices are rising, until a bubble appears and may eventually burst.

This strategy is typically based on market sentiment or trend rather than company fundamentals. Investing in a "trend" stock shows that investors are mimicking behaviour over a period of time. Momentum investing attempts to take advantage of the mimicry bias of investors by investing in a trending stock and the continuation of the movement will result with a gain. A point to be made, this style of strategy is not designed for risk-averse people, because the value can quickly turn around in a change of trend and possibly cause losses for unwary investors. According to the work of Titman (1993), the highest returns of this strategy occur in the six months before the trend reversal.

d) **Reversal effect**

Thaler and De Bondt (1985), two pioneers in behavioural finance, teach us that investors tend to overreact to market news, good or bad. An investment in a portfolio containing the 50 worst stocks (over an average period of 4 years) in an index will outperform, over the short term, a portfolio containing the 50 best stocks in the index. However, this can only be observed for a period of 6 months to a year.

This effect is the exact opposite of the Momentum effect, in its form as well as in its strategy. The latter focuses on trend reversal.

e) Week-End and January effect

The January and weekend effects are time-delay effects, the tendency for market prices to close lower on Monday than the following Friday. Similarly, we see price declines over the weekend and recovery at the beginning of the week. This is due to company announcements and the risk of holding a position over the weekend and suffering the weight of bad news over the weekend.

This market anomaly shows that investors are reacting out of fear of bad news over the weekend and to protect their positions, preferring to sell them. This leads to additional transaction costs, which directly affect the performance of their portfolio.

The January effect is not based on the same assumptions, the end of the year for the fund managers are at the end of December, so to decrease the taxes for the year, many investors are selling their positions, and directly lowers the stock price. And in January, the investors are buying back the stocks. So, we can see a rebound at the beginning of the year.

The strategy of the Monday effect is to avoid the possible slipping of the Weekend. The objective is to sell these positions over the weekend in order to avoid the weekend gap and possibly open in negative territory on Monday. But the reverse game is possible, this reaction of the markets makes them close down on Friday, taking into account the economic context and the news of the Weekend, opens a buying window on Friday for Monday.

f) Post Earnings Announcement Drift (P.E.A.D)

P.E.A.D. is the name given to an anomaly in the adjustment of markets to business information by the market. If the markets are efficient, then the stock price adjustment should be instantaneous. But in fact, markets adjust gradually to information, amplified by the mimicry of markets and under-reaction of investors create a more or less long adjustment time for a stock price to adjust its price.

The strategy applicable to this anomaly is based on the expectation of market announcements and analysis of investor reaction. In the case of information on exceptional results, investors will re-evaluate the value of the share and switch to purchase. In this case, the largest investors will have to spread their orders over several sessions and thus create a rise over several days.

Conclusion

Different strategies that investors have at their disposal to arbitrate their wealth. Conventional strategies have many risks related to trends that investors may not consider when purchasing assets but have real advantages in maximizing the return on their portfolio. Have financial institutions taken the model of behavioural finance as the basis for their research and asset management? The results of the analysis show us the interest of this application, but also the opportunity for everyone to benefit from it. The strategies have both positive and negative characteristics, none of which provide returns well above the benchmark. The anomalies we have described are perfect examples of market inefficiency and therefore investor inconsistency. These anomalies are as much risk as an opportunity when they are incorporated into a strategy and a complete analysis of an asset before its purchase. Moreover, investment strategies incorporating behavioural finance, by their level of adaptation to market behaviour, require active management, so the risk is greater. As we have been able to develop during the overconfidence bias, investors are potentially inclined to overtrade and thus reduce returns.

III. Behavioural finance indicators

In this section, we will develop several indicators of market feeling regarding the economic outlook or investor feeling. An update on the situation and forecasts by these indices will give us information on the market trend and possibly show us the inconsistency with the price.

a) Volatility (VIX index)

Following the development of behavioural finance and the impact of investor behaviour on market prices, many specialists have turned their attention to the question of how to detect dangerous events in the markets. And a well-known indicator of traditional finance has become obvious: volatility.

Volatility represents the magnitude of changes in the price of a financial asset. Volatility is used in the calculation of financial assets and in the qualification of an asset's risk. Volatility is an indicator of the risk of an asset, it represents the reaction of the asset to the news that is more or less good. In a sense, volatility gives the expectation of higher gains, but also a corresponding risk of loss. Therefore, high market volatility is an indicator of high risk.

Professor A. Frugier' (2016), a study of investor returns and sentiments, using an empirical approach to portfolio outcomes, by incorporating volatility into the relationship between investor sentiment and future returns. In this study, Professor Frugier shows that portfolios managed with investor sentiment have better returns and carry less risk under certain conditions.

An easy way to track the volatility of the markets and therefore also the fear of the markets, other than by stock prices, is a VIX index (volatility index), also known as the "fear index". This index is based on the American market and is calculated by means of the annual volatilities on options (call and put). Options are a way of valuing having a choice, but the greater the fear and uncertainty, the more expensive the choice. The history of the VIX index clearly shows that periods of great uncertainty and fear melt away at the VIX index, as in 2008, during the subprime crisis, when the VIX reached 59 in October.

We can, therefore, make the link between the level of volatility and the impact of the crisis in question. In this sense, the VIX recorded a record rise on 16 March 2020 to a level of 82. This shows that the market presents considerable risk at this time, and yet we will see that investors have a strong rally towards the financial markets, directly showing that they are prone to the psychological traps that we will develop.

In conclusion, the volatility in the financial market shows an increased risk in these troubled times. It is a period of economic uncertainty with indicators that are all more negative than one another. On the other hand, more investors than ever before are entering markets driven by false-positive psychological biases, as we will develop in the next section. These behaviours lead investors, who are often novices, to enter the markets without understanding all the ins and outs of the markets. The psychological pitfalls to which they are prone are all the more likely to condition their gains or losses.

b) **AAII Bull and Bear**

The Investor Sentiment Poll by The American Association of Individual Investors is probably the most popular poll referring to Wall Street. It is conducted among AAII members who answer the same simple question every week. The results are compiled in the AAII Investor Sentiment Survey, which provides information about the mood of individual investors.

The AAII Investor Sentiment Survey has become a widely followed measure of individual investor sentiment. The results of the weekly survey are published on websites such as Bloomberg and are widely followed by market participants.

The AAII indicator for the year 2020 (figure 4), shows us that American individual investors are predominantly bearish, but the difference between positive and negative investors is very limited, despite the situation we have described, 30% of the investors surveyed are positive. The difference with neutral and negative investors is more, the month of March, the period of the biggest market decline but also of the rebound at the end of the month, shows that 52% of the investors surveyed have a negative feeling about the markets. But this did not prevent the month-end rebound at all.

In conclusion, this index best conveys the sentiment of US retail investors. Despite a predominantly negative market sentiment regarding the market trend, the market still recorded a rebound at the end of the month of more than 20% during April.

c) **CNN Fear and Greed index**

The fear and greed index developed by the news channel CNN is slightly different in its construction than the AAII index. It is not based on a survey of investors, but it takes into consideration various measures, including those that refer to market sentiments such as the VIX index, demand for safe havens and the width of stock prices.

The results are shown on a scale of 0 to 100. The higher the scale, the greedier the investors are. A level of 50 is considered neutral.

The CNN Fear and Greed index has very frankly crossed the extreme fear level, before coming back and staying on the fear side (figure 5). The different elements that characterize the index show an ever-present fear, one of the indicators is the demand for safe havens, which shows a strong appetite of investors, an element that counterbalances the index, but which shows us the fear of investors. In addition, stock prices are always considered to be in extreme fear during the month of April, while during the same period stocks show record price and volume increases.

In conclusion, the CNN index gives us a market trend through market behaviour towards different asset classes. The CNN Index is therefore more subjective than survey indices, which are the voice of market participants.

d) **ZEW index.**

The ZEW index is an indicator created to measure the level of investor confidence in Europe. In contrast to the AAII index, the ZEW index measures the expectations of analysts and institutional investors for the future of the German economy, which is based on 300 to 350 analyses.

The index is calculated as the difference between optimistic and pessimistic analysts' forecasts for the German economy for the next 6 months on several points (figure 6).

During May, the ZEW index shows that over April and in the eurozone, analysts expect a deterioration in the economic situation, marking the biggest drop in the index. At the same time, the financial markets have been marking a rebound since the end of March, which continues during the month of April. (Figure 6).

Consequently, this index is a great overview of institutional investors about their feelings about the market. The elements we have with this index during the period who made us thinking of our research show that the market is afraid but the market price shows fearless with the rebound.

e) **Haven values**

Safe havens have been an indicator of market fear on riskier stocks such as equities for decades. Safe havens are defined as investments that allow you to secure your assets in a period of crisis. Their characteristics allow you to hedge against the fluctuation of the markets when they are in difficulty. These characteristics are largely due to their non-correlation to riskier or more volatile assets such as shares, bonds, and other contracts.

Several values are commonly considered as a refuge value, we can list some of them such as:

- Gold
- Swiss Franc (CHF)
- Japanese Yen (JPY)

In the minds of investors, these values represent safety in times of crisis. In this case, market professionals use them as a market sounding device, the evolution of the price of safe havens indicates to the operators, the trend of investors on the markets. An increase of these is a signal that investors are looking for security and thus they show a renewed fear on the markets. On the other hand, a decrease in the prices of safe havens can show that investors are looking for risk.

But what has happened to the values of refuge during our crisis? - Physical gold reached record prices with a 7% jump in April. But the highlight comes from the demand for investment gold, which has risen to +80% according to the World Gold Council (WGC) (*Comptoir National de l'Or, 2020*). The Swiss franc has been appreciating for several years and more particularly in this year 2020, recording a 3% decline over the beginning of the year 2020. In this situation, the high demand and the strengthening of the currency oblige the Swiss central bank (SNB) to take measures to support its currency. Less conventional, the Japanese Yen (JPY) is the third most traded currency and confidence in the country and control of their public debt is pushing investors to turn to the Yen. As a result, the JPY appreciated a lot during the March market downturn of around 8%.

In conclusion, safe havens show strong investor demand and rising values. Therefore, we can conclude that the sentiment of older investors is turning to these safe havens and therefore they are looking for security.

f) **Conclusion**

To conclude, several indicators show market sentiment, they cannot be taken as perfect values, as each indicator uses different data and some of the opinions are subjective. In addition, sentiment data can also be used to determine if there is potential for recent movements to continue. For example, in the case you find an upward trend on the stock index, but the market feeling remains extremely bullish and the positioning is also high, it means that the trend is not much potential to continue. If the whole market is buying, then who would still be buying stocks. The usefulness of market feeling indicators shows a great efficiency for investment decision making detected the timing of entry into a position but also and above all understand a market inconsistency. In the case where the markets are trending upwards on the indexes but investor sentiment shows great fear, then the movement is possibly speculative. In the end, these indicators are important elements in the investment strategy of investors and especially in the adaptation of investors to improve returns and reduce losses.

Chapter 3: Methodology

1) Research context

Since the end of 2019, the world has seen the emergence of a pandemic linked to a virus, coronavirus or COVID-19. This bacteriological threat has led to a global health crisis with most of the world in quarantine. The quarantine has created a halt in the production of household and business consumption, causing very significant losses at all levels of the economy. Households have lost part of their income, companies have also lost income, but not all their expenses have been postponed. In the end, governments, in order to support the economy and reduce the impact of this production stoppage, pushed their debt levels beyond expectations. As we can see the overall situation presents many negative indicators. Moreover, despite the fact that a large part of the world's population was released from quarantine during the month of May, the return to a so-called normal economic situation is difficult to affirm, especially in view of the economic losses that will take many years to be absorbed.

On the financial markets, the month of March, the month in which the containment was announced, saw a fall in the global indices of around 30% on average. This is explained by the companies' earnings forecasts, with the loss of revenue during the containment period obviously impacting share prices. Most of the companies most affected by the economic effects of the coronavirus and needing cash to be able to restart their activity, have decided not to distribute dividends, a fundamental element in the calculation of the value of a share, and have thus lost a lot of value. In this situation, the markets react in a coherent and even rational way to information.

But we could see that the same month of March at sight an influx of new investors arriving on the market the articles in La Tribune (2020) and CNBC (2020) show a massive influx of new market players. This entry into such a troubled and risky market shows us an inconsistency of these investors, their decisions to join the market can be motivated and aware of the risk but also by a vision of the market "at broken price" or "discount". This line of thought carries a risk for newcomer investors but also for financial professionals. As developed in the literature review, the cognitive traps that investors are subject to can create market movements, inconsistencies, anomalies, which can alter the performance of everyone's portfolios. In periods of high volatility, all assets become riskier and stress is felt.

Based on this observation, we decided to understand the impact of Behavioural Finance (BF) on investors and more particularly on individual investors. Mastering the concepts and pitfalls of FC gives a definite advantage to investors applying it. We, therefore, developed in our literature review the importance and the components of CF that show us its interest. Thus, we decided to conduct our research on the understanding of CE among investors in order to understand its application, its use, and especially its impact on their decisions and strategies. Two paths are emerging in terms of our study's response, if the trend shows that investors are prone to fall into psychological traps and that their understanding of CE is low, then the interest of this study is to open up a new field of reflection for them in their investment decisions and in their understanding of financial markets. And if CF is applied, understood, and integrated into the investor model, then our study would give us a current view of CF in the market, and furthermore, the integration of behavioural finance would make market anomalies "consistent" or conscious.

Behavioural finance has a very important effect on markets where stress and fear are present, in times of crisis shall we say. Ignorance of psychological biases opens up risks of loss but above all gains to initiate them from the market.

But in the current economic context, burdened with uncertainty, stress, negative economic indicators, investor reactions, their arrival on the financial markets, the increased increase in transactions are more than ever important points to take into account in the management of its portfolio. This is the reason for our interest in dealing with this subject.

But like all common thinking to link to an activity, when the credibility, correctness and application of a theory or current of thought, the activity integrates it to become one. Integration into the asset valuation model would be the sign of complete integration of behavioural finance into classical theory, just as the efficient market theory has been integrated into asset valuation. In this context, not only the application but also the impact of behavioural finance in investors' decisions is more than ever an important axis in the understanding of markets. Individual investors, who take advantage of market opportunities and have more relative experience of markets, are potentially more prone to psychological traps, which we will try to demonstrate in our study.

2) Research strategy

We have decided to address this issue through original research around individual investors. As institutional investors' understanding of behavioural finance is now a major focus of financial institutions' research, we have focused on individual investors, who have more limited means and whose subject matter of this paper takes on greater significance. Individual investors are increasingly numerous in the market, as we have already noted, and they represent a significant share of the financial markets.

Our research targeted individual investors with a questionnaire built in three parts, in order to have a maximum of relevant information to answer our problematic. Our questionnaire is entirely anonymous, the choice of anonymity was mandatory for the subjects of the study, as money is an area related to the intimacy of households, anonymity seemed to us to be a solution to get more return. The first part of the questionnaire is composed of three simple questions in order to know the investors who participated in our study. The psychology of individuals varies according to a large number of criteria, education, religion, level of wealth, etc. These questions target as well as criteria common to each one and related to the investment.

The second part of our questionnaire was not treated as an ordinary questionnaire. Taking into account the psychology of investors, proposing direct questions to investors would have given too much inconsistency. Indeed, individual investors do not have the track record to track their performance and even less the means to qualify their results to their psychology. Moreover, the psychological bias of confidence and self-attribution would distort the results, as subjects would attribute performance to their skills and losses to the economic environment. So that the questions give us a trend and the most relevant answers to our problems, we have therefore proposed situations with simple choices of answers by voluntarily obliterating a large part of the investment reflection criteria. The large number of elements conditioning the investment decision of individuals are as many elements that can make investors' choices vary and thus specify the research to certain elements, as they also represent as many possible answers that would give us as many trends as answers. Our strategy on this study is therefore to apply cases presenting choices in order to define a trend, which we will detail in the Data section.

Following this, in the last part of our questionnaire, we target investors who use and are familiar with behavioural finance. The objective of this part is to better understand the impact of behavioural finance on familiar investors. The strategy in this part seeks to understand for individual investors the impact of BF. The response to the proposed cases will give us the tendency of investors to fall into psychological traps of the cases and the comparison with the response to the same case by a professional will give us the tendency of investors to fall into psychological traps. Indeed, we assume that investors familiar with the concepts of behavioural finance are able to take the necessary distance to give an objective view of behavioural finance in their strategies and decisions.

Finally, we decided to supplement our study with interviews with asset management professionals regarding the current situation and their views on behavioural finance. The objective of this last part is to have a viewpoint of market professionals and their perception of the markets and to complete our research with a viewpoint of those whose job it is to invest. These professionals have different questions about their views of the market at this time and their understanding and application of behavioural finance in their companies and decisions. We are therefore going to make a consensus of the interviews of two professionals in order to have smoother answers and thus a more global opinion of asset management professionals. The important point in the analysis we will make of the results of the two professionals we interviewed is that we wish to remain completely anonymous in our analysis and research. Since the management of the institutions was not consulted, the opinions of our interviewees are their own and do not in any way commit their institutions. The answers and opinions that these two professionals were able to transmit to us for our study reflect their one and only opinion, which itself varies from their experience, position or responsibility to the breasts of their institutions.

Our strategy, therefore, focuses on understanding and defining a trend in the influence of behavioural finance and psychological biases on individual investors and highlighting the opportunities and threats of this trend in today's markets.

3) Research focus

The research is based on a questionnaire whose target subjects are individual investors and is completed by two interviews with financial professionals. The objective of the questionnaire is to take stock of the use of behavioural finance in the perception, understanding, decision and strategy of investors. As developed earlier, periods of turmoil, crisis and uncertainty in the markets provoke fears, anxieties and other emotions that impact investors' management, strategy and decision making. The usefulness of behavioural finance is not to be proven in asset management, but as much as the world of finance professionals apply or at least understand behavioural finance, individuals are less so. The primary objective of this paper is to understand investors subject to behavioural finance, their aversion to falling into the cognitive traps described above and thus to be able to understand the impact of behavioural finance on investor investment strategies and decisions. The second objective of this paper is to understand how they integrate these behaviours into their investment strategies for investors familiar with this concept. Moreover, a comparison with the vision of two financial professionals on this subject will allow us to identify inconsistencies and support the problem raised by this document. The purpose of this research paper is to provide a current, objective and factual view of behavioural finance on individual investors in these troubled times and the importance of its application.

4) Data

This research targets individual investors. Naturally, the level of experience of the investors will vary the quality of the answers, a novice investor will potentially have less experience and therefore fewer skills than others. But the questionnaire also opens up a view on the level of competence of novice investors. The questionnaire has been proposed to investors voluntarily and without constraint in the answers, only advising them to answer as naturally as possible.

Behavioural finance is the research and study of investor psychology in markets and in their management, no mathematical model having been created and applied to the asset valuation model, no mathematical and empirical means allow the analysis of investor psychology data. Indeed, the analysis of data relating to investor psychology is not quantifiable and is solely a matter for the analyst's interpretation. Our research is, in this respect, a study of the behaviour of investors questioned and our analysis of their decision and behaviour we will conclude the impact of behavioural finance. Thus, having no mathematical or empirical method to analyse the results of our research we will for each of our cases and questions develop the context, the objective of the question and the angle of analysis in order to provide the most honest results possible. We will, therefore, compare the results obtained from investors' decisions and behaviour with the different psychological biases that we developed during our review of the behavioural finance literature.

The questionnaire was disseminated to the study subjects through the forum, a group specialising in social networks (Facebook). The research paper presents an eclectic panel of investor profile, origin, culture and experience. It is composed of three origins: Europe, USA and Africa. An overwhelming majority of the responses come from European investors (94%), so despite the few responses from different origins, the responses express a majority of the experience and understanding of European investors.

This empirical experiment aims to take stock of the impact of behavioural finance, and therefore of the pitfalls developed in the literature review, on the investment decisions of individuals and professionals. As developed above, many investors rush into the markets potentially for the wrong reasons and our research focus is on psychological reasons. An understanding of investor behavioural finance would point to a considered risk-taking on the part of investors. The logic behind these questions is to put into practice the concepts developed above. Theoretically, all investors have heard of or even studied behavioural finance, in fact, the age of this current and its application by professionals makes it unavoidable for investors.

This study collected forty-nine responses from individual investors during a two-week period when the questionnaire was opened. Responses were received from 10 May to 24 May. The choice of this period was intended to provide investors with certain hindsight on the events that led us to reflect on this document and this research.

The data collected comes from direct sources, we questioned individual investors. The choice to collect information directly gives us a very concrete vision of behavioural finance on investors. Collecting data from investors is more than difficult because it is very subjective to analyse, as their experiences, levels, strategies and psychologies present far too many variables in the calculation to define a clear trend. This is why we decided to take this questionnaire on the practical case axis or test situation to test the psychology of investors.

Answers on the practical cases of investors familiar with CF cannot carry weight in the trend because we consider that these investors are aware of the psychological pitfalls and other strategies with which they could benefit. We, therefore, assume that their answers cannot be naïve and purely instinctive. Under these conditions, we will not take into account the responses of investors familiar with the concepts of behavioural finance.

We will, therefore, analyse the results of the responses of individual investors who are not familiar with CF, because we assume that, due to their unawareness of the concepts of behavioural finance, their responses will be as natural as possible and thus best reflect the tendency to fall into psychological traps.

The second part of our research is the interview of two asset management professionals, we would like to thank them again for their involvement in our research and the time they devoted to us. To introduce him, our first interviewee is a financial market professional, after more than 5 years of experience in asset management in an asset management firm, his experience mixes, the youth of new trends such as behavioural finance as well as traditional asset management. Our interviewee is currently working in a renowned financial company of major size within the Monegasque financial centre. Why this location, because it combines a human scale and rigour for private asset management for many years.

Our second professional is an Asset Manager with more than 7 years of experience in asset management with the leading asset management company in Europe. This company is located in Paris, France which is the French financial centre. His experience within a large, prestigious institution that represents some of the largest business volumes in the industry. We wish to keep the anonymity of our speakers due to their responsibility and therefore their opinion is purely subjective about us and does not commit their companies. The data collected from professionals is based on the current context, the application of behavioural finance and their opinions of behavioural finance at this time.

Our analysis of the data collected is based on an explanation of the case undertaken and the angle of reflection of the question in order to have in view the reflection of our analysis. In addition to the different elements mentioned above, we will analyse the data collected by extracting the responses on an Excel spreadsheet, and then we will make an analysis of the proportions.

The study contains exemptions of elements, which could enrich the study but also distort the logic of the research.

Logic - The angle of our research shows advantages to avoid certain psychological limits of investors in their decisions. The points developed in the literature review showed us that several psychological biases make investors' reactions and responses differ depending on many factors. But despite our case study approach, several elements remain and limit the precision of the answers in our study. Investors responding to the questionnaire were advised from the outset of our study to answer as naturally and objectively as possible, as the practical cases concern investment decisions. These decisions are conditioned by numerous financial and strategic criteria. But not taking these points into account, the answers must, by logic, be as logical as possible. It is in this context of logic that investors show a tendency to take risks or security in relation to the case presented, logic comes to say that the security of these investments is the norm.

Structure - One of the limitations of our study is its own form. Questions in the form of case studies give us a clear trend on the questions, but on the other hand, they do not give precise answers on the impact and moreover investors do not necessarily have all the tools to monitor the performance of certain investment funds. Taking into account this element, the answers and conclusions of our study will give an overall trend of the problem raised by this document but will offer many additional lines of work.

Religion - The research paper does not focus on investor origin. Indeed, the customs, law, and use of certain products will not be taken into account in the research. For example, religious beliefs may influence investors' choices and decisions. Ethics and also the precepts of certain religions have obligations in terms of ethics, for example, many companies are forbidden to invest in them due to their business, belief, association or action that certain companies take. The example being more evocative, the case of the Muslim religion (ISLAM) forbids to make investments in projects or companies whose object is prohibited by the religion. Companies with an activity related to alcohol or gambling are therefore prohibited, according to the precepts of Islam. This psychological bias is not taken into account in the examples and questions in the questionnaire, which could create a slight doubt about the one hundred percent reliability of the investors' answers. But religion can also bring an aspect of market efficiency, greed or greed being sins can lead to rational behaviour in the markets. Despite, the benefits of mischief that religions can bring to the markets, these are no longer managed by efficiency but by yield, thus the effects of religions are much more mitigated. In our case, religions can make changes in the responses of investors, but in our research, we do not focus on these elements, despite the interest that these can represent.

Age - Another component not included in the questionnaire is the age of the investors, an age range requested to target the trend of the responses, but numerous studies and empirical analysis prove that age reduces the risk-taking of the subjects. As retirement approaches, subjects are more conservative, the risk of losing the long effort of a lifetime, while youth remains more inclined to take risks, which we will see in the analysis of the study.

Fortune - The personal criteria of the study subjects are not taken into account, which opens up many questions about loss aversion and overconfidence. The origin of wealth, for example, would be an important example of risk aversion because, as the literature review develops, we are more willing to take risks when we have received unexpected money.

Psychology – Our subject treat of psychology and we will try to find the impact of it on investors, but one of the limits of our research is also the psychology of the investors. In fact, the investors responding to our study, are themselves permanently inclined to their own psychology, so the psychological biases that we detailed can alter the responses of investors. We will detail in each of the results through the biases which can vary the responses of the investors questioned.

Feedback – A large part of our study comes from the results and the self-analysis of the subjects questioned. Thus, the psychology of investors intervenes as much on the responses of subjects, but their own interpretations of their results can also be altered by different cognitive biases. In order to reduce the impact of BF on investors, we thus just take into account the responses of investors who are familiar with BF, assuming that their familiarity with BF gives them the feedback necessary for their self-analysis.

Law of small numbers - The law of large numbers considers that a statistical result is only acceptable if the observed sample is large enough. In fact, many individuals tend to generalize, which is only a special case. So, in our case we are analysing a small number of answers, so our study is limited by this number and the trend we will figure out, it needs to be understood taking into account this point.

Chapter 4: Findings

I. Practical cases on investors non familiar with behavioural finance.

In this part of the document, we focus on the answers of the investors who are not familiar with behavioural finance (BF). This part is made to find the trend of the individual investors to fall in the psychologic traps. We developpe multiple closed questions to try to find the impact of situation presenting a behavioural trap and see where the investors are going to several traps that we will explore by questions in the form of practical cases. Some of the questions are coupled with others to find psychological errors between the same situation but not the same information. The objective is to find the impact of several the behavioural and psychological traps on investors completely ignorant of the behavioural finance.

First, the people not familiar with behavioural finance concepts are representing 67% of the total, so 33 persons. This number is really important for our study and question, indeed, the concepts of BF and psychology in finance are coming from 1950 with the theory of FAMA. And since this period, the concepts developed to finally be incorporated to the traditional finance, as we saw the example of the Degroof Petercam and JP Morgan AM. Therefore, logic dictates that a serious current will eventually be accepted and applied by the majority of the investors. And this number shows us that people are mostly not aware of the irrationality of the market. All the studies of the finance are based on the market efficiency, the rationality of the investors and the logical adjustment of the market with the information. Our study and literature review make a perfect representation of market inefficiency and so the importance of applying the principles BF. We analyse the results of the survey as the investors are thinking with the efficient market hypothesis (EMH) because the lack of knowledge of BF cannot permit them to use these principles and therefore, they are answering instinct.

We will take into account the experience of investors who have 63.6% less than 5 years of financial experience and therefore 36.4% have experience of more than 5 years. The point that stands out in this information is that the subjects questioned are for the most part novice in the markets representing 42% of respondents with experience of less than 1 year. Our results thus reflect a majority panel of investors with little experience and thus a reaction to our most honest practical cases. In addition, the investment horizon is a significant point in the response to our questionnaire, our study thus shows, 81.8% of the people questioned have a long-term horizon. Thus, taking the basis of long-term strategies, investors will, therefore, have a greater desire to keep their title and keep a balance in their portfolio by limiting the number of transactions. On these elements, we have a more global overview of the vision of the responses of the investors questioned.

What feelings do you have of a stock you have in the portfolio, which goes up in price, but not because of its fundamentals?

This question proposes two ways to answers, one is "fear and sell" or "stay and buy more". The objective of this question is to see if the market is greedy. In the case of a stock price is going up, without any logic, it means that the stock is trendy and so no logic behind that normally you sell when the persons are going too far. So, the results show that 64% of the people are staying with their position and buy more stocks, and so 36% of the people are selling the position.

To understand the reflection behind this case, we all have to know the Unit Cost Price (UCP). We calculation the UCP by taking the sum of the amounts invested (in points for the indexes, in the currency for the shares) and you divide it by the quantity, which will give you the unit cost price. The interest of the UCP in our question is that if investors are buying more stocks, they will dilute their cost price.

That results show that the investors are analysing the stock as trendy and they follow the market, without any fundamental analysis. The risk here is that buying more stocks as a higher price reduces the returns of the position. That shows us that the persons asked are falling into several traps describe earlier. The first one is the herding bias; investors are simply following the market without good reason. The risk here is to possibly face a reversal trend of the stock and after buying more stocks, the loss could be greater than the previous gain. Another bias is the self-attribution. This question is simply describing that the investors who made the decision to buy this stock are focusing on their previous analyse and not adjusting their strategy to the market trend. The risk of this bias, in this case, is that focusing on his analysis, the investors are buying more of the stock without taking into account all the parameters, fundamentals, and finally topple the balance of the risk and return of the portfolio.

The trend behind this question shows us that the persons unfamiliar with behavioural finance, are likely to fall in the traps of the BF, the greed of the investors to make a bit more money make them take much more risk than intended.

The bias of overconfidence here describes the greed behaviour of the investors by the self-attribution as explained, but more generally, our case explains a situation that the investor has the stock in their portfolio. In this case, they made their analysis and decision to buy it, and in our case, they are over-reacting to the market movement, by buying more stock. They have confidence in their analysis but they are not adjusting their strategy to the new information. This could be explaining also with the conservatism bias, his decision to invest in this stock is made because he thinks that it will goes up, and when the stock price go up, they are buying more but with no reason, and the results are that they dilute their UCP.

To conclude the findings of this question, the investors are in this case choosing the facility, the greed, the confidence in themselves, and not analysing the market, the feeling of the market. Moreover, as we describe during our analysis of the results, they are not optimizing their returns and they are fuelling the inefficiency of the market.

Are you willing to invest in a company that sees his price going up without better fundamentals in time?

The next question we asked is the same question as to the previous one but taken in another form. The logic and the case are the same, but we are using other words to answers. The case is the stock price going up with no reason and the questioned people have to axes to answer, "yes and take advantage of the rise" and "No, speculative movement.

We have the exact opposite in the responses. 60%, 20 persons surveyed are not investing in the stock, and 40%, 13 persons are investing. We see a turnaround in the responses. We have the complete reverse proportion of the answers. This time we spoke about the speculative movement to not investing in, therefore investors are not interesting because the movement is speculative, but in the previous question, the same price increase, they invest more in the stock. To clarify the number of people who changed their opinions between the two cases is 65% change from buying to not buying between the two questions.

Here, our test is showing a psychological mistake investor makes, they interpret information and movements differently. In the first case, they invest more and take more risks because they have already the stock in their portfolio. But in the second case, they just don't invest in the stock because we precise that this is a speculative movement. So, it all depends on the information they have, they act completely differently. The BF describes these actions as the bias of misperceiving randomness. In the first case, we are not explaining why the price is going up and they are greedy to make money, but in the second case we describe a risky situation, speculative movement, and so we describe why the price is going up. The result of the two cases is the same but the reaction of the investors is not the same.

The objective of this case (the previous question) is to explain how investors interpret the information and how they are reacting with the difference of the information. In the first case, the investors are more willing to take the risk by buying more stock dilute the price of returning from their upward position and thus in the event of a reversal the loss may prove to be greater. In this case, the investor, are not taking the same risk, because we precise that the movement is speculative. That is proving us that people are risk-averse because they have precision, but in the case that they don't have enough information they are taking the same risk. BF explains that behaviour by the bias of herding, the lack of information put the investors to follow the mass of investors without taking all the indicators and accounting elements into account, defining an irrational reaction.

Another bias is describing the reaction of the investors and it is anchoring bias. The investors, in the first case, are mostly watching their previous performance and the expectation of the higher return, push them to buy more stocks, but the investors are fixing their returns on the past cost price without any other analysis. So, they are focusing their decision only on their past analysis. In this case, the investors are taking the opposite direction due to the fact that they have not the stock in their portfolio. The comparison of the two questions demonstrates that investors are prone to fall into the cognitive biases described as conservatism and overconfidence.

To conclude, the combination of the first question and the present one shows us a difference in investor reaction and their tendency to follow psychological traps. Thus, the impact of investors psychology on a situation is significant, the traps and cognitive bias that BF offers us in response to investor reactions show a strong impact in their reactions and decisions.

In the actual economic situation, the market rebound, are you buying or selling?

In this question, we are focusing on the economic situation, as we describe it several times during this paper, the indicators are bad and describe a very bad situation for the companies globally. In fact, the economy is absolutely not in a good health and we are not seeing the end of the lockdown, therefore, the impact of the lockdown on companies has not yet been quantified by companies, but we can now maintain that all companies will mostly see their fundamentals changed negatively for 2020.

So, in this case, we tried to find if in the crisis situation and taking into account all the parameter of the actual situation if the people are investing if the market rebounds. As analysed in the context of the study, the rebound of the market is mostly due to the entry in the market by a considerable number of new players.

The results of the question show that 42% of the people sell the market and 58% are buying the market. the results are tighter but for as much we see a majority for the purchase of the market. To understand the practical case, we are figuring that in a crisis situation with record volatility and all the indicators detailed in the literature review, the context is mostly negative and the simple logic or market efficiency wants that investors fear the market, the high level of volatility increases the risk level of a position in the investor portfolio. In short, the investors will go away from the market, to maintain the same level of risk and return.

Otherwise, the investors are mostly buying the market and taking a high risk. We can explain that with the experience of the investors surveyed. Let's assume that the investors less experienced do not have all the technics to trade the market, so, they are more prone to take a bad decision. So, 68% of the investors who buy the market have less than 5 years' experience, and 78% have less than 10 years' experience. So, we have a correlation between the results and in the tendency to fall into the psychological traps of behavioural finance.

Moreover, Investors are, by a small majority, a buyer of the market with knowledge of the environment in which they make their decision. Thus, 58% of investors buying the market enters a case that BF identifies as the fear of missing the opportunity. So, the rebound represents for them the signal that the market is finally recovering, and so take the risk of buying the market. the cognitive bias of the anchor pushes them to make a decision seeing the highest market in the hope of seeing it reach these last courses. But in our case, the cognitive bias of investor overreaction is much more descriptive of our situation. The only information available to those interviewed is the economic context, which presents worrying indicators and the fact that the market rebounds, but we do not specify over time, by the logic of our instinctive reflection, the rebound is daily. Thus, investors react to mainly negative information, in this case, 42% of investors do not take the risk of buying the market on a bottomless movement. But 58% of those questioned take the risk of buying. Our analysis shows the overreaction of investors to a market movement without any positive information, the cognitive bias of overreaction is defined by the overreaction of investors to market information, our case presents a perfect example of this cognitive trap.

In addition, the bias of herding is also applicable to this case. This behavioural bias of herding is the fact of following the behaviour of the majority of the market, because as the saying goes: "The market is always right". Consequently, in our case the investors, having little information and moreover negative, followed the movement of the market by taking a position to buy. We can, therefore, make the link between this behavioural bias and the reaction of the subjects questioned.

To conclude this question, investors tend and even have a strong tendency to take a risk by obliterating a lot of information. Our analysis of the data, in this case, gives us a large majority of people taking the risk of investing with little equipment. Behavioural finance responds to this behaviour by several psychological biases, such as overreaction, anchoring and herding.

If many people are investing stock or recommending to invest in, are you willing to buy or sell? (buy = buy the stock / Sell= don't buy)

The logic in this question is to directly propose people if they are following recommendations to buy or sell. In this case, the option "buy" means that they follow the recommendation and in the "sell" case the investors do not follow the recommendation. This question is not an obligation literally buy or sell the stock, as we precise at the beginning of the survey, we just want to find the trend in the investor's behaviours.

The objective of this question is to find how people act with the recommendations and find the trend in the bias of mimicry. Theoretically, investments are personal, but generally, people with a lack of information or competencies in a field are blindly listening to recommendations, consensus, notice and advise. But all these elements are subjective, each person has a proper idea and notice of something and not everyone is giving the best advice for nothing. Therefore, recommendations are not reliable information.

The results of this question demonstrate that 66,67% of the investors no familiar with behavioural finance, buy under the recommendation of an unknown person, therefore 33,33% of the investors are them not following the recommendation. The investors are therefore most prone to take decision by following the group or recommendation, several risks are coming from this type of decisions. First, investors are not understanding why they are investing in a specific stock, as we develop during the strategies in the literature review, many points are important to take a decision to invest, the fundamentals of the company, accounting, results and ratios but also the management of the company. In our case, the investors offer their trust to a person of whom they have no information but for whom they give importance above their own analysis.

The risks behind recommendations are that people with influence can provide biased advice to other investors for their own profit. This is called the self-fulfilling prophecy. In other words, if several people manage to convince a large part of the person to buy a security, then the security will go up in price due to demand, as we describe the case of the TV show, Mad Money. But not for good reason and often in the interest of the people who advised him. In this case, investors buy for the wrong reason, poor quality products.

Our analysis shows that 86,36% of the investors not familiar with behavioural finance and buying the recommendation are investing in the long term. This statistic shows a serious trend and a much higher risk for long term investors for the short-term ones. The short-term investors can use a market movement or trend to make money in a very short time, but for the long-term ones, are buying low for a long period and therefore they don't constantly look at their wallets. Assuming the recommendation they followed is wrong, these investors are going to, potentially, have significant losses.

Behavioural finance concepts, define this behaviour of the investors as the bias of herding, the most common one. The investors are following a group of people or the recommendation of a group. The investors can't know and analyse every stocks or securities, but when they have the information of the potential gain and win in a position they don't know, are afraid of missing an opportunity and push them to make decisions without analysis, placing their trust in the author of the recommendation who believes that he must be competent to say that.

Moreover, and only by assumption, if the investors made past losses or gains, they are willing to take more risks, in the case of past losses, the investors want to gain quickly as possible, as the loss aversion bias developed by Terance Odean (1998) by the result of confirmation bias. Any information that could justify the recommendation will be taken into account, hiding any negative information, so, investors will follow the recommendation. In the case of many past gains, investors by the overconfidence bias are willing to take the risk and only based on their judgment and the risk of missing the opportunity to win, push them to focus on a security in which you do not have a lot of knowledge and according to the same logic as for the case of past loss, the investor will follow the advice.

Finally, investors who follow the recommendation have the difficulties to sell the position if he is making losses. the losses aversion developed by the work of Tversky and Kahneman shows that investors reacting badly to a loss tend to keep their position in the hope of finding a benefit when making a decision. But in our case an investor subconsciously following advice cannot define the objective of the stock, they are mainly based on advice.

To resume the answers and analyse of this question, the investors are mostly following the recommendations they see, they completely fall in the mimicry bias with all the risks linked to that. Taking a decision without knowing all the fundamentals or without having all the clue to take the decision can make the investor in a difficult position. They can stay or invest in a bad moment or security and potentially assuming losses. The misunderstanding of a decision or a choice does not allow an investor to know when to sell the position. Ultimately, this question demonstrates the significant impact of behavioural finance on investors decisions.

You have a stock with good fundamentals and bought at a good price. If this stock drop by 10 %, not due to his fundamentals, are you?

First, the logic of this question is to find how investor reacts with their portfolio facing a situation of high stress. In this case, a stock in your portfolio is dropping by 10% but not due to his fundamentals, that means that the price movement is just powered by the investor's reaction on the market. The stock has good fundamentals so it is a good investment but as we will see, we have two ways to analyse the results of this case. The answers of the case are "stay with the stock" or "sell even with a gain".

This case has two ways to answer it, the first is the impact on the decision of the investors, the event of our case is powered by the investor's emotions and decision in the market and so it made the stock dropped by 10%. So, the first way is to analyse how investors react to the case coming from market behaviours. The second way to answer this case is, following the decisions of the investors to the situation, their reaction has to follow the optimization of the returns of the portfolios. So, the importance to the long-term horizon or short-term horizon has an importance in the answers of the investors but the end goal is performance.

The results of our case, 85% of the investors stay with the position, and they are assuming a 10% drop in capital value in their portfolio. Moreover, of this big portion of the investors staying with the position, 85,7% of them, are long-term investors. So, the reaction of the market to sell this security, without any information or change in the basic elements of the stock, describing an inefficient market reaction, the investors are mostly not reacting to the market. Therefore, simply we can conclude that investors have a reaction contrary to the inefficiency of the market, and so, the impact of behavioural finance on the investor reaction is low. But, as we say, the end goal of the investors is to make returns and optimize the returns.

In these conditions, the investors are keeping a position that loss 10%, so they are not optimizing the returns. Behavioural finance concept is defining this reaction as the underreaction to information, the overconfidence which brings the investors in the trap of the loss aversion. First, as Debondt and Thaler developed this bias, the underreaction of the investors is the fact that they are under reacting to adjust their strategy and portfolio to new information. In our case, the investors are not adjusting their strategy even if they are selling with a benefit, that could be explained by the fact that they are mostly investing long-term, but even if they are, they are not optimizing the returns.

Potentially, the trend is reversing on that stock, and as we develop the reversal effect, potentially the stock will fall more.

Consequently, the investors are definitely under-reacting to the price drop of this stock. This is the exact example of an under-reaction of investors, coming from the overconfidence bias. As developed by Terrance Odean (1998) the overconfidence is a heuristic that put the investors in an overconfident, and in our case, the investors are focusing in the fact that they have the stock in their portfolio, so they made a good decision and they will keep it. But as David Hirschleifer (2015) proved that, in that case, investors are not optimizing the returns from their position. The overconfidence in their judgement and decision on that stock to have it in their portfolio, make them obliterate the sale of their position as a confidant of the future performance, according to their analyse. In addition to that, conservatism bias adds the circumstance of our case and on the reaction of the investors about it. The conservatism bias, developed by Edwards (1966) adds that investors trendily not revaluate the new information of the market and give too much importance on the past importance. In our case, the investors are confident about the fact that they pic that stock to their portfolio, so they made a good analysis and the decision to buy it. But in our case, they do not question their decision and thus do not transform their winnings, but keep the title potentially too long. As the financial saying goes: "it better to cut your hand now, than your arm later". This adage answers perfectly our case.

To conclude our question, we can conclude that the impact of the behaviour of the market have a small impact on the decision of the investors. Despite all, the non-reaction of investors to market behaviour shows us as much a psychological trap in which the investors interviewed falls into it. Our case to raise two important psychological biases and being more represented and tested by empirical studies, proving to us that the psychological traps have an important impact in the management of the assets of the investors and in their optimization of the risk management.

Conclusion

To conclude the results of our study of individual investors unfamiliar with the BF. The trend that emerges from our results shows a significant aversion of this category of the investor to fall into the psychological traps of behavioural finance. in the different cases presented by our study, in each case the investors fall into the different cognitive traps, but mainly, the biases of herding, anchoring and overconfidence, the biases most verified by empirical studies. In this case, we can conclude that investors are impacted by psychological biases.

II. Practice case Investors familiar with behavioural finance.

In this part, our survey is focusing on the acknowledgement of the investor familiar with the concepts of behavioural finance. In this part, we are assuming that the investors familiar with the BF, are using and understanding the main traps, strategies and psychological biases. So, all the answers are a pure self-assessment of the BF on the investors using it.

First, as we already see, only 32,2% of the people questioned are familiar with the concepts of BF. So, only 16 persons on 49 are familiar with these concepts. As we explained earlier, behavioural finance is a major path today of finance, and we already see that the majority of the investors are not understanding the key working concepts of the financial markets nowadays.

Furthermore, the majority of the persons, 62%, who answers this part are less than 5 years financial experience, that shows us that the experience is not a good element to qualified the acknowledgement of the investors about BF. Only 38% of the investors having more than 5 years of experience are familiar with the concept of behavioural finance.

Also, the investment horizon of the investors is changing how the investors are answering, even if the behavioural finance is appliable on all strategies, long term horizon is more focusing on the value of the stock and the further perspectives, and short-term investors are focusing on the movement on short timing. So, 43% of the investors who answers this part are Short term, and so 57% are long term.

Do you find a link between your behaviours and your financial performance?

With this question, we focus on the investor's familiars with behavioural finance and we are assuming that the comprehension of their own psychology provides us with a feedback overview of their answers and the impact of the BF on them, they can quantify the impact of that on them.

The results of this question demonstrate that 93,8 % of the persons found a link between their own behaviour and their financial performance. Only one person answers "no" to this question but seeing the rest of this answer, this person probably makes a mistake in the previous question. So, for the investors, their own psychology and behaviour are directly correlated with their financial performance. That result shows us that people, aware of the behavioural finance, are perfectly understanding the effect of their own behaviours on their investments, proving that understanding his own psychology can affect their performance. That shows us the positive impact of the application of the BF for individuals' investors.

In this case, even if, we are assuming that the investors are 100% aware of their psychology and the traps of it, when they are investing, we cannot be 100% sure that investors understand all the aspects. As we mentioned, the bias of overconfidence or auto-attribution, the investors potentially affect their performance to their knowledge in the BF fields, but it can also be a cognitive bias.

Are you using the investor feelings or investors trend in your stock picking?

The logic behind this question is that we want to know how and if investors are using fundamentals of the behavioural finance in their strategy. As we develop during the literature review, two options are offered to the investors to use behavioural finance. The first is for himself understanding our limits and psychological errors, the second is the application for the portfolio, for that many indicators and effect, are visible on the markets, as the momentum effect.

With the question, we are searching how there are using the concept of the behavioural finance and the results will give us the trend on the application of the behavioural finance concepts on the stock picking. The stock picking is the analysis that leads to the choice of stocks to incorporate in your portfolio, generally, this step is done by analysing the fundamentals of the stocks and by analysing the valuation model of financial assets, as is the CAPM (Capital Asset Pricing Model) model. As we assumed that the investors interrogate are aware of the BF concepts, we assume also that they are aware of all the tools available on the market to analyse the market trends and market feelings, as the indicators we have detailed above, such as volatility (VIX index) or market feelings (CNN feat and greed index).

Therefore, the results show that 68,8 % of the persons who answer the survey are using behavioural finance in their stock picking. So, the investors familiar with BF are mostly using it in their stock picking, here we are not do not ask for the precision of the use and the tools used. But the logic behind the stock picking is to analyse the security before to take the decision to invest in, so we can make the link between the analyse and the decision. So, the investors are using BF in their analysis of the stocks. In another way, 31,2% of the investors are they, not using it in their stock picking, thus a third of the investors questioning do not apply BF for their choice of shares but are thus aware of these biases in their decisions.

Consequently, we can conclude from this question that the two-third of individual investors familiar with BF use these concepts in their choice and analysis of stocks, we can, therefore, draw the conclusion that BF is of importance in the analysis of investors actions. This question gives us a global vision of the importance of BF for the investor analysis, and to understand more in detailed the impact, the next questions, we are going more in detail on some point.

How important is behavioural finance (market feeling) in your decisions and strategy?

To follow the logic of our research, this question logic is to understand the significance of the market feeling in the investor's decisions and strategy. The importance here is to find the impact of the market feeling, on the investor's decision, but on investors who are familiar with BF. Our expansion of the BF literature gives us and allowed us to defined the market feeling as the general feeling of the market. Sometimes greedy, sometimes fearful, in each situation risks occur, a market to greedy, the market overvalues securities and the risk of trend reversal occur. And, in a fearful market, the volatility increases and the response of investors in the market is not always taken conscientiously and rationally.

So, the importance of this element in the investors' decision has its importance in our case. Low importance will show that agents do not take market risk into account in their strategy and potentially can make rational decisions in a time of irrational markets.

Previously we asked people on their use of BF for their stock picking and we saw that the investors, most are using the concepts on their analysis to choose a stock. To precise the previous answer we are focusing here on the importance of the BF in the decisions of the investors. We have tree possibility to answers, high, medium and low level of importance for them.

The results are mostly for substantial importance for the interviewed investors, 31% of the persons are taking the BF as a fundamental in their strategy, and 56% of the persons are taking it in account in their strategy. Only 12,5 % of the people familiar with the BF concept are not giving it as important. Finally, 87,5 % of the people, 14 persons over 16, are taking BF as an important indicator in their strategy.

Furthermore, this information is giving us that the people who understand BF are using this indicator as important, so the impact on the investment decision is important. The result can permit us to rethink the result of the previous question, the investors who are giving low importance to BF on their decisions, are the two investors that take low importance of BF in their decisions. *So, we can integrate this result in a more restricted* *way, because the reaction of these two investors appears insane in our cases. In all the questions their answers are negative.*

Did you have any better performance by using Behavioural finance in your strategy?

After asking about the integration and the impact of the BF concepts on their portfolio, we will here push the questions a little further, the investors interviewed thus demonstrated to us that they apply BF in their management, in one direction or the other, the application is confirmed. So, we will ask them about the returns that investors could have using BF.

In this case, we take into account the fact that individual investors do not have the same tools to be able to monitor their results and in our context, BF in each of the subjects interviewed is all the more difficult to be able to assess or attribute in results term. Moreover, since psychology is constantly interfering with the responses of investors, the responses to this question may be subject to self-attribution. Indeed, investors with the superior performance of benchmarks can attribute their performance to their “talent” or “skill” and not by certain logic or favourable market movement. Thus, in our case, we will simply analyse the responses in order to get out the trend concerning the performance of BF on the portfolios of individuals, but we keep the inaccuracies of psychology in order to refine our conclusions.

Starting from this facts, this question is more difficult, generally individual investors don’t have the back off necessary to perfectly analyse the results of their strategies and decisions using the concepts but the trend shown by the answers show that the majority (56,3%) recognize and admit that they have better performance using the behavioural finance and 43,7% don’t have any better performance. So, the use of the BF in their strategy has a more contained impact on their performance, as we have shown earlier in the literature review.

Therefore, taking the results of our study, the use of the BF is improving the returns of the portfolio. As we describe at the beginning of this question, the results are potentially modified by the elements that we have described. But according to the figures, the answer we have gathered does not allow us to give a clear trend of the impact of BF on performance. So, taking into account the figures from our study, a small majority of investors see an improvement in their performance thanks to BF. We can, therefore, conclude that BF thus has a positive impact on individual investors.

But, taking into account all the psychological aspects and the imprecision which they entail in the response of our subjects, thus allow us to refine our conclusion that BF for the portfolios of individual investors does not prove a great improvement in returns of these.

Do you adapt your investment strategy by the market feelings? (risk, volatility, inconsistencies)

As we describe during our strategy party in the literature review, the strategy of the investors can be different, depending on their investment style, passive and active. In the two ways, the BF can be applied but many risks we identified on the use of BF in the strategy. The analysis of DOURET (2015), shows that adapting the fund portfolio to the market behaviour, push them to use an active strategy and therefore they take more risk for the returns they made. The Efficient Market Hypothesis (EMH) says that investors are adjusting the price of the assets by the information available on the market but the overreaction and under-reaction of the market unveiled this theory, in our case the adjustment of the portfolio of the investor is part of the EMH. If the market increase in risk or drop, portfolio adjust to conserve the risk-return level equal.

In these conditions, the adjustment of the portfolio is normal and adapting their strategy to, the drop off the oil price during the month of May, show the departure of many investors from oil stocks during the period. But, the logic of our question here is to understand the adaptations of investors' strategy to the feelings of the markets, thus to understand their reactions to a change in the market behaviour, and so the impact of the BF on investors by a market intermediary.

Investors have many ways to invest and the ones who invest long term, so generally by buying and holding the investment, are generally not looking at their investments and so possibly passing by phases of growth and decline in their portfolio. The short terms ones are they just trading movement of the stocks, in the two ways the importance of adapting their portfolio are making the better returns, some stocks are falling and even with good fundamentals. Adapting your portfolio and sell when the trend is reversing make you better returns. So, to this question, 81,3% of the people surveyed are adapting their portfolio to the market feelings. A point that we must all take into account is that 18.7% of investors do not adapt their management and their portfolio to the vagaries and feelings of the market. Thus, putting back the case in our study and following the BF, these investors, being familiar with behavioral finance are themselves prone to the cognitive bias of conservatism. We can only assume that their investment decisions and horizon are the reason for their choices because these investors are all long term horizon, but as we have been able to develop this bias, the fact of keeping stocks that were considered good at the origin of the decision-making and do not adapt their portfolios to market information (under-reaction bias) can cause losses by holding a position for too long. Returning to a famous quote from finance: "*It is better to cut your hand now than your arm later.*"

This is the application of the BF in portfolio management by the individual investors and this is also answering the better performance due to the BF concepts in their strategy. But, as explained also, the too much transactions can affect the result of the portfolio due to the transactions fees, an example of the excess trading of the investors. Moreover, the bias we presume for the 18,7% people who are not adapting their strategy and portfolio are, even familiar to BF, inclined to fall in psychological traps and potentially not optimise the returns.

Which indicators do you follow to feel the market?

This question is to understand, which indicators are using to apply BF, follow the feeling of the market. It's an open question, because all the investors are different, even with the basics of finance, all have a different point of view and different technics to invest. The answers to this question are not all relevant to be used, but two people are using the stock indexes to see the trends, not relevant because the indexes are not showing a trend on each stock and unfortunately it is not relevant to the market feeling. We can make a comparison between the level of the VIX index and the rebound of the market. Another element used as the indicator mentioned is technical analysis indicators (PMI, graphics, volumes, RSI). These indicators are beneficial for short term trading and to analyse the market and its reactions, but they are not giving us the trend of the feeling of the market, so you can have a positive movement on stock but it can be avoided due to the feeling of the market, and the trend reverse.

All the indicators mentioned shows that the investors using BF are not directly using the indicators we mentioned in the literature which they are the perfect indicators of the market feeling and therefore analysis consolidators. For example, you analyse a stock high potential of growth, but all the market feeling is bearish, your analysis has to be adjusted by the market feeling. The indicators we explained in our literature review, are pure market feelings and what we analyse here is that people who use the concepts of BF in their strategies are not directly using the indicators of the market feeling, so we can assume that even when the investors are using BF are not using all the aspects of it.

This element is demonstrating that the investors who are aware and familiar with BF are overconfident in their knowledge. We developpe the indicators used and available on the market to evaluate the market feeling, and no investors have cited one of these indicators. This question gives us an overview of the knowledge, and even if they are understanding the basics of BF, they are falling into another cognitive trap.

Conclusion

All the findings of this part, focused on the investors using the behavioural finance, are showing us the impact of the BF on the individual investors, how they are perceiving the BF and results. So, to conclude the second part of our survey findings, we found that 32 % of the people who are familiar with the BF are seeing and perceiving the concepts of BF and using it generally as they answer. The trend behind the answers to this part is that the BF has a consequent impact on the investors familiar with. Almost everybody is seeing a link and impact between their psychology and their financial performance. The understanding of this impact makes them use the elements of BF in their decision and strategy, showing that for the initiate of BF the impact of these elements is very important in their decision. Most of the people are seeing a positive impact on their decision by knowing these concepts. But, even with this impact, the results on their portfolio, as greater returns are more difficult for them to analyse and give feedback but the findings show that they don't have better returns by using it. A point we did not ask about, is the type of strategy they are using, passive strategy, as we described earlier, will make less work to the investors but for an active strategy, the findings of our questions will probably give another point of view. Indeed, we could have made the links between the type of strategy and the importance of BF. Investors using BF in their portfolio management are potentially reducing their losses but not seeing superior returns. Finally, the investors initiated to the BF are using it as fundamental by seeing the better results they are making by using it. The observation of that shows us investors using BF are seeing an opportunity or a profit in using it, but not financially, but in their understanding of the markets and their portfolio. We can conclude that the impact on their psychology is important in their management but financially speaking too hard to define precisely.

III. Professional investors interview

To complete our study and knowing that the answers of the investors are already subjective, we ask professionals about the actual economic environment, their feeling about the market, and how they are analysing the market. The objective of this part is to add the point of view of the professional investors to get another view of the problem we are going through. The professional investors are also impacted by the psychological biases in two ways, on their asset allocation decisions and by the behaviour of the market. BF concepts are now a major stream of finance. Market anomalies validate the inefficiency of the markets, show the interest for finance professionals to understand certain psychological biases.

The professionals we interviewed are French so our data is in French but we, translate the answers in English. The first answers are from an asset manager in the private bank in Monaco, and the second are the answers from a fund manager in a prestigious and well-known company based in Paris. We want to find their answers in our thesis because to do the consensus, we will summarize and make a conclusion of each question, but each professional has a point of view, and to understand our consensus, the answers of the professionals are directly important on our subject.

What do you think of the reactions of the financial market during this period of crisis? (extreme volatility, rebound, optimism…)

Professional 1: *"Before the crisis, the markets moved upwards without real foundations, reaching highs. During the recent crisis, the markets fell historically (between 30% and 40%). Volatility has jumped with the VIX index to levels that reach those of the 2008 crisis. The rebound in the economy and the markets is obvious but there are still uncertainties about the recovery. Will it be fast? slow? or jerky with the return of an epidemic? The March rebound was marked by movements of investors on the lowest of the market, presenting an opportunity but the rebound occurred in a period of extreme stress on the markets and in an uncertainty of the impact of the crisis on the businesses. We still see companies showing difficulties after the COVID crisis as the economic environment "improves"."*

Professional 2: *"I think the market reactions to this crisis were pretty normal, we were in a period of global economic uncertainty. All economic players were affected and are still affected, which is why all the markets plunged and suffered a period of extreme volatility. There was no good news and that increased this uncertainty and the downturn in the markets until better news was obtained. The rebound in March seems very early given the economic and social situation in March, the start of lockdown, cessation of activities, etc. The economic rebound, in general, will not happen, I think, quickly but rather gradually. We will not have a V-shaped rebound because consumers do not regain confidence at the end of containment and the risk that demand will be weak may exist for certain industries."*

In this question, we try to find how the professionals are interpreting the reaction of the markets during the period of crisis. As we describe this period, the economy and all the financial environment are showing many elements of depression and recession. So, the crisis we are facing is a perfect situation to see the market and investors behaviours.

Our interviewed professionals have the same opinion concerning the fall in the markets during the period of March due to the many uncertainties and risks that the financial markets entailed. The impact of the economic situation strongly affected professional and individual investors and thus their reactions to withdrawal from the markets are considered as a rational reaction by our speakers. The general opinion is on a rebound of the economy in time but not in the short term, the reasons mentioned are the economic recovery and especially the speed of returning to production before the crisis. Regarding the rebound in the indices during the month of March seems, for our experts, to have occurred a bit early given the economic situation and the impact of this crisis on the economy.

To conclude, the market seems to react rationally to the crisis, on the main lines, but the rebound of march, just after the sharp drop in indexes is seen as early by the professional, the medium- and long-term horizon of the markets is still opaque investors have taken a strong risk.

Have you observed irrational behaviour? (if yes, examples)

Professional 1: *"I have observed irrational behaviour during the past few weeks. The markets overreact to certain announcements and under-react to others. For example, the CAC40 rebounded on Monday by more than 5% on the session, before losing all of this increase during the week, as relations between the US and China deteriorated. We have also seen the irrational reaction of a client, for example, a client with a conservative discretionary management mandate, losing 10% of the month at the height of the crisis. The client wanted to sell his portfolio and close his management mandate. The customer will unfortunately not be able to recover his losses ..."*

Professional 2: "*The massive sale at the start of the crisis seemed irrational to me at the beginning but with hindsight, we were clearly in a situation of uncertainty and as the days and continuous declines I understood that the economy would have to struggle to revive. Aside from that, investor positions have been rational in lowering the indices. But despite this, the rise in equities in the midst of a crisis and the start of containment shows us that investors are taking a very significant risk in a more than uncertain period."*

Professionals have more element to track, watch and analyse the market than the individual's investors, so by this question we are trying to find if the professional saw, irrational reaction on the market. As we explain during this paper, all the analyse is about the psychology and the interpretation of element and decisions of the investors on the market. The market represents many types of investors and they are not represented at the same weight. That is why this question is just the subjective opinion of our professionals.

The opinion that emerges overall from the responses collected is that there are several inconsistencies in the financial markets. The most significant inconsistencies that emerge come from over and under reaction from market players on public market information. One of the examples that stand out is a strong rebound in the French market for no valid reason, but at the same time, several pieces of information show us a renewed tension between the Sino-American relations. The debate which has strongly animated the markets during the last years and which today had a weak impact in the decision of the investors. This inconsistency can be tested and analysed to find a correlation between the reaction of the investors to this information and their decisions making. But as we can observe market are under-reacting to bad information, to focusing on the prospects for vaccines and the end of the crisis.

For our first professional, working in a private bank, he also so irrational decision on clients' portfolios, as he explained, a client closed his positions and portfolio with a loss of 10%, this reaction is simply guided by the client's fear and loss aversion, the clients want to protect his wealth. His departure from the markets is understandable and rational. Finally, the professional saw inconsistencies on the market and as we can assume, for cognitive reasons.

For our second professional, the markets react rationally at the beginning of the crisis by selling their positions, due to the economic context. But he adds the risk-taking of the investors at the beginning of the crisis and lockdown. The company results and vision are not clear and the market is highly volatile as the indicators we describe shows. Our questioned professional pointed out the significant risk, investors are taking.

To conclude this question, the main return of this question is that the downward movement of the markets was purely rational, the risk increasing on the markets and the companies being impacted by the consequences of the confinement of the population, the valuations corrected their value to the situation. But the rapid rebound in the markets, even though most of the population did not yet see the end of the crisis, is a very significant and inconsistent risk-taking given the context. Thus, the professionals felt irrational behaviour on the part of the investors.

What position does your company currently take towards the markets? (offensive or defensive and for what reasons)

***Professional 1:** "Our bank has private heritage clients. Their main objective is to secure their heritage. Our position is rather cautious and defensive. As the environment is subject to uncertainty and high volatility, we are taking defensive measures."*

Professional 2: "*During the confinement period we were very defensive during the confinement period, the loss in productivity and in the results of the companies naturally caused their values to vary downwards. We are now mainly in a bullish position and highlight our ESG and green impact products which are becoming more and more popular given the situation."*

In this question we have two points of view, our first asset manager works directly to manage clients' portfolios and fund for a private bank, so his point of view about his company position on the market is very different than our second asset manage, who is working for an asset management company only managing investment funds and trackers. So, here we have two points of view that enrich our study.

Our asset manager in a private bank has a different objective of the funds they are managing, clients in private banks have a long-term objective, that make them very risk-averse. In this way, the bank has taken part in a defensive strategy in the face of rising risk and volatility.

For our fund manager, the investment fund management company is now in an offensive position in view of the end of confinement and better prospects for production. Despite the positive vision of the future of this company, the period of containment was a defensive period for the investment company, the risk and the exposure to the world markets, pushed the company to opt for a more defensive strategy.

Putting this information in the context of our research, the professionals are taking defensive strategies during the crisis and we can only understand this strategy which is rational. But at the same time, we saw a market entry for many investors during this period. But we will see the opinion of professionals regarding this point in the next question.

Do you think that market movements in this period (crisis) can be explained by the behavioural finance?

Professional 1: "*Yes, for retail investors only. We have seen an increase in the activities of our bank's unmanaged portfolios during the sharp downturn in the markets and investors are still looking for an opportunity in a market that does not take a clear direction."*

Professional 2: "*I think so, it is a behaviour and a feeling of the investors who anticipated the declines of activities in the whole of the industries. It was a reflex of uncertainty that closed the positions. Regarding the rebound at the end of March, it is clearly amplified by the investors who entered the market, the prospect of taking advantage of low prices* *pushed a majority of people to invest at a low point in the market, but in a context at that time, very uncertain."*

This question enters the opinion of investors regarding their understanding of the markets and the impact of BF in the markets. Unable to quantify the impact of BF in the markets, the answers of our two interviewees are purely subjective to their understanding, experience and analysis of the markets.

First, our manager in a private bank is clearly seeing an increase in the activities in the unmanaged portfolio of the investors due to the crisis, and now they are seeing an increase in the transaction. Putting these behaviours related to our paper, this behaviour of the clients is seeming like the overconfidence bias with trading excess, the research of returns and opportunities are making clients taking too much transaction and potentially reducing their returns, but we can only assume.

Our second manager, sees which clients are investing in their funds and his answer is that market react rationally during the drawdown, the economic results and the company returns perspective, made the investors closing their positions. Regarding the rebound of March, for him the market was amplified by the arrival of new investors, professionals, in general, took defensive strategy during this period and the market rebound can be explained for him by the investor's behaviour, probably the greed of the investors.

To conclude the general return of the question is that the sharp decrease of the indexes is a normal rational movement, the economic context explains this very well. But concerning the rebound of the market, the increase of the number of the transaction and the arrival of many investors could present the behaviour of the investors made the rebound.

What is your point of view on entry into the market of many investors during this period? (Risk or opportunity?)

Professional 1: "*I think this strategy can pay off only for sophisticated investors. Indeed, this allows investors to enter historically low levels. The markets will return in the near future to the levels of late 2019 / early 2020. Prospects for gains are expected. The relative euphoria of the markets in recent days following the publication of progress on research against COVID-19 allows us to be reassured about the future development of the markets. However, many uncertainties remain, in particular:*

- *When will scientists find an effective cure for the Coronavirus?*
- *Will there be a new epidemic?*
- *How will Sino-American relations develop?*

These vectors will be in my opinion the main factors of stabilization / rise in the markets."

Professional 2: "*They have only looked for the downside opportunity of the markets and will look for the positive rebound. It depends on the amounts invested and the duration of their position, but I think that is generally a risk. Some of them also go against the trend and are fairly new to the markets which can work in periods of high volatility but I do not know if these players will remain in the markets and be new customers for professionals."*

This question is directly linked with the context who brings us to this research, Investors who come in the market during this period are where we find the question of our study. We believe that investors have entered the market to take advantage of the low stock prices, there is no doubt, but beyond this reflection, the arrival of new investors brings a change in the parameters of the markets. The number of participants in the market increases, following our observation, the number of transactions has also increased, thus the liquidity and the volatility of the same. But the reflection of our research tends to discover that the impact of BF on investors would offer opportunities or threats in asset management. So, we asked professionals their point of view of this event on the market to compare our work to their views.

For our first professional this element represents an opportunity for the investors who enter the market, but only for the most skilled ones. The volatility of the market and also the market risks weighing on the minds of investors, for them entering the market is an opportunity, despite numerous uncertainties linked to the discovery of a vaccine for COVID. So, for him, the arrival of the investor is an opportunity for them to enter the market.

For our second manager, the investors only saw the downside opportunities to enter the market, but depending on the risk there are taking, the amount invested and by the duration of their positions. Even if he admits that it is an opportunity, our manager, warning about the risk of the market. Also, some investors are taking more risks as going against the market, potentially can make greater returns.

To conclude the professionals, think that the arrival of new investors represents an opportunity for the market, they are making the market more liquid but also more volatile. An opportunity, but in a period of high risk on the market. Putting this question in our context, people can potentially make gains on the market but even the professionals are alerting to market risks during this period. Many elements still create uncertainty, and therefore risk. Thus, the arrival of new investors in droves on the risk and fear borrowing markets shows an irrational behaviour of investors given the context.

Do you use the principles of behavioural finance in your management? (No precision in the process just yes or no, and what interests do you get from it)

Professional 1: "*Yes. We use certain market sentiment trend indicators, such as the VIX, to monitor our decision-making, and managing our clients' wealth involves securing assets and minimizing the risk taken."*

Professional 2: "*Yes, it is taken into account of course and it helps to understand the trend or anticipate it."*

Finally, we asked our interviewed about their use of behavioural finance (BF) in their work. The interest here is to find if BF, is the "norm" in the investment company or if they are taking it into account. As we develop, people, investors and professional have several ways to use BF in their strategies, decisions or for their own. Here, we want to develop that and tried to show how professionals use it and how is the interest of it. For reasons of confidentiality, competition and strategy, we do not ask for precision in the application or their strategies.

The observation is without contrast, our interviewees use the principles of BF within their institutions. This shows us that BF is a current, used within institutions, but presenting a different interest in each of the two companies of our professionals. For the private bank asset management, the use is on the indicators to feel the market in the decisions of investment, but it is not applied in the strategy, only as an indicator to adjust it. And, for the fund manager, they are using it to understand, predict or anticipate the trend in the asset, to take advantage of.

Making this information in our paper context, the solutions, indicators and strategies we saw during our literature review are here making sense by seeing that professional are using them, in their strategies.

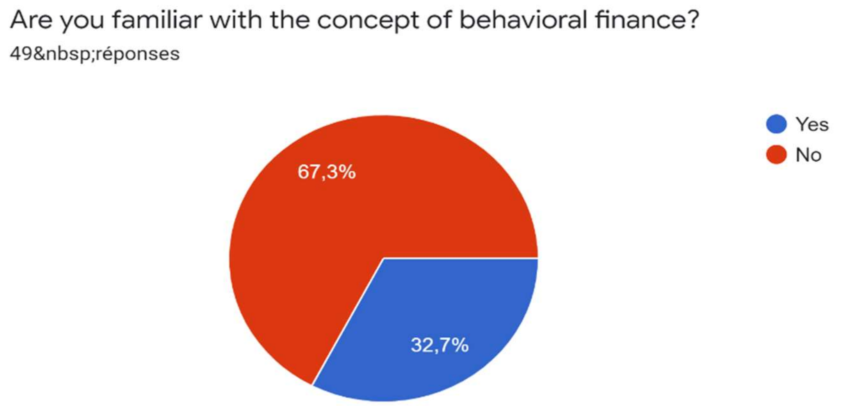
Conclusion

To conclude our last part of our study, the responses we have gathered from our two professionals are very much focused on the context of the markets. Our research here is focused on the vision of financial market professionals on BF through their eyes. Thus, the irrationality of the investors on the markets appears clearly in the answers, the investment funds indirectly represented by our interviewees have made provisions for the coming crisis and have modified their strategies by adapting to the risk and the economic context. But their views on the arrival of new individual investors show for them a risk-taking and a decision that we can consider hasty, taking into account the situation. This further supports the interest of our research. The consensus of the professional about the importance of the BF on investors decisions is unequivocal one reason of the reaction of the market in this period, the reaction of the market in this uncertainty situation have no mathematical or efficient response. In addition, the arrival of new individual investors is viewed as an opportunity from their point of view and for their business, but in the investor's way they are viewing this as an important risk to enter at this moment. To make an analogy, the investors are blindly entering the market at the moment they did it.

Moreover, and to confront the investors use of behavioural finance and the familiar investors interviewed, the professional use the indicators of the market to probe the market and adjust their decisions with it. But the answers show also that behavioural finance is used by the professional as an indicator, but a subjective one. These indicators are not the base of their investment strategy because even they are probing the market feelings, they are subjective in the use.

IV.Summary of the findings

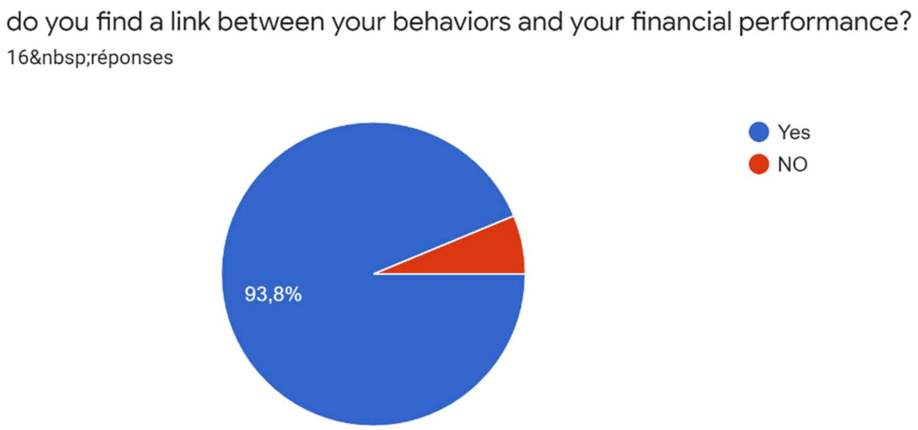
Summary of the findings of the study, part 1, investors non familiar with BF.



Resume findings Part 1			
Investment experience of the investors interviewed.	**Less than 5 y** **63,6%**	**More than 5 y** **36,4%**	**Less than 1y** **42%**
Investment horizon	**Short term** **18,2%**	**Long term** **81,8%**	
Are you familiar with the concept of behavioural finance?	**Yes** **32,2%**	**NO** **67,8%**	

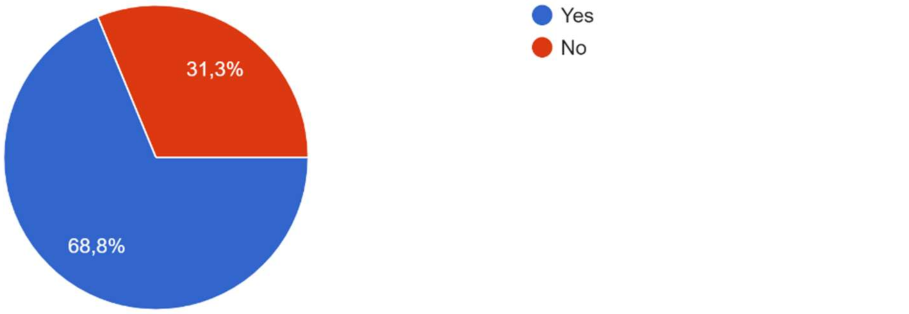
what feelings do you have of a stock you have in the portfolio, which goes up in price, but not because of its fundamentals?	**Stay and buy more** **64%**	**Fear and sell** **36%**	
Are you willing to invest in a company that sees his price going up without better fundamentals in time?	**Yes, take advantage of the rise** **40%**	**No, speculative movement** **60%**	**Changing opinion from the previous case** **65%**
In the actual economic situation, the markets rebound, are you buying or selling?	**Buy** **58%** 78% have less than 10 years' experience and 68% less than 5 years.	**Sell** **42%**	
If many people are investing stock or recommending to invest in, are you willing to buy or sell?	**Buy** **66,67%** 86,36% of buyer are long term investors	**Sell** **33,33%**	
You have a stock with good fundamentals and bought at a good price. If this stock drop by 10%, not due to his fundamentals, are you? long term investors	**Stay with the stock** **85%** 85,7%	**Sell even with a gain.** **15%**	

<u>Summary of the findings of the study, part 2, investors non familiar with BF.</u>



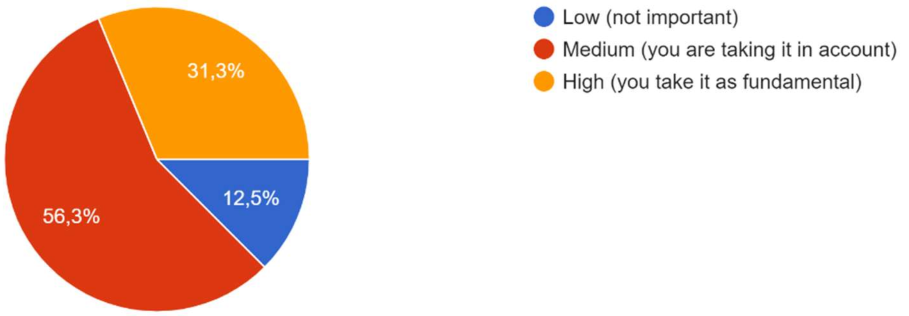
Are you using the investor feelings or investors trend in your stock picking?

16 réponses



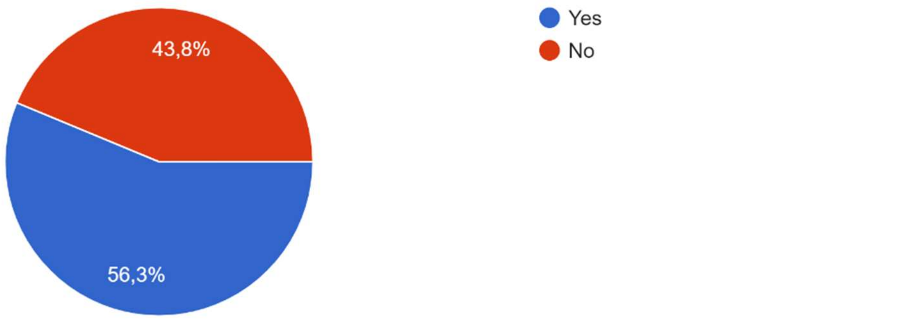
How important is behavioral finance (market feeling) in your decisions and strategy?

16 réponses

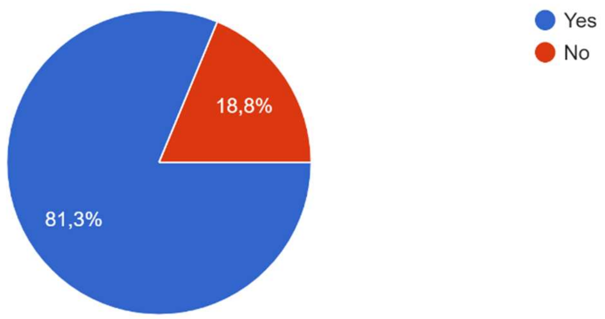


Did you have any better performance by using Behavioural finance in your strategy?

16 réponses



Do you adapt your investment strategy by the market feelings? (risk, volatility, inconsistencies)
16 réponses



Resume findings Part 2			
Investment experience of the investors interviewed.	**Less than 5 y** **62%**	**More than 5 y** **38%**	- -
Investment horizon	**Short term** **43%**	**Long term** **57%**	
do you find a link between your behaviours and your financial performance?	**Yes** **93,8%**	**No** **6,2%**	
Are you using the investor feelings or investors trend in your stock picking?	**Yes** **68,8%**	**No** **31,3%**	
How important is behavioural finance (market feeling) in your decisions and strategy?	**Low (not important)** **12,5%**	**Medium (you are taking it in account)** **31,3%**	**High (you take it as fundamental)** **56,3%**
Did you have any better performance by using Behavioural finance in your strategy?	**Yes** **56,3%**	**No** **43,7%**	
Do you adapt your investment strategy by the market feelings? (risk, volatility, inconsistencies)	**Yes** **81,3%**	**No** **18,8%**	

Chapter 5: Summary, Conclusions, and Recommendations

Study conclusion

During all this work we tried to determine the importance and the application of the BF for the individual investors. We started analysing, during our work, the components of behavioural finance and the elements calling into question rational market management and cognitive biases. Thus, we also develop the means available to everyone to use it. To conclude on the importance of its application through our analysis and research.

To begin with, our study first focused on investors who were not familiar with the concepts of BF, they represent almost 70% of the people we surveyed. The interest of this part of the questionnaire is to collect the frankest answers and not to modify by the skills of the familiar investors the BF. So, our work brings us to different conclusions. Indeed, the responses of investors show us a strong predilection to fall into the psychological traps that our cases have set. The main traps that we have detected and analysed are, of course, the most common in the field of BF, as well, the behaviours of follower, of over-confidence bias presented by these different procedures such as excess trading, and finally the bias anchor. our study had the ambition to collect data from different countries, culture and origin, but the result of our response confines us to a majority of Europeans thus not allowing us to draw parallels with the origin of investors in their responses. In order to refine the results of our study, we must take into account the psychology of investors in our responses.
all in all, the trend explicitly shows a majority of investors questioning are not familiar with BF, and our empirical study shows the pitfalls and thus the results of our study, as one having a negative impact on this typology of investors, by their tendency to fall into psychological traps. We have a link between the experience and the responses of investors, the majority have less than 5 years of financial experience, 42% of which have less than one year of experience. This suggests that lack of experience affects the tendency to fall into traps.

Secondly, our study looked to the 30% of investors who are familiar with BF. In this second part, we have developed many questions about the use and return that familiar investors have on their performance and their investment decisions. This point leads us to know the impact of BF on investors using it and what type of impact it can have. Investors interviewed did not experience a greater performance by understanding and using BF in their management. The impossibility of using mathematical models, because for the moment never developed, investors do not find a concrete way to use

BF in their management. Another point is the indicators of market sentiment that we have discovered that emerge absolutely unknown to the eyes of investors, allowing us to doubt the wide use or understanding of BF. In return, the investors interviewed recognize a profit in their decision-making and give a certain interest in the BF to the investors.

The important point in our research is that the psychology of the investor can be figured out by our study, but no mathematical model permits us to quantify the impact on their strategy or decisions. The only possibility we have to understand and quantify an impact is on studying the portfolio of individual investors and the reasons for each decision they are taking when investing. But even, with this research way the psychology of the investors will interfere in the answers, using the biases of over-confidence.

And finally, our study went to interview two market and investment professionals, to get their point of view on BF on individual investors, from their vision of the markets and their skills in reading the markets. The interest for our study to diversify our point of view is to compare the vision of professionals with the economic context and compare their feelings of market behaviour with the answers we have gathered in the other part of our study. Thus, our analysis of the responses allowed us to make a consensus of their opinions on our subject of study. Therefore, our two interviewees, all like the investors familiar with behavioural finance, use BF in the management of the funds of their companies, but only as a decision element for their own person. In addition, the reaction of the markets during the rebound of the March is perceived by our interviewees as a very important risk-taking by individual investors who are going against the current of the market. the trend that emerges from the analysis of professionals is that BF is important in the management of its portfolio, in order to know these own limits.

This high importance just correlated the response of the other investors interviewed. Indeed, the responses of investors unfamiliar with behavioural finance, shows a strong tendency to fall into the cognitive biases that the brain creates, thus, BF has a low impact in their decisions. But in the case of investors familiar with the BF shows the importance in the management of their assets and to complement professional investors, have a similar opinion on the positive impact on decisions. The superior financial results are neither cited nor prove, DOURET studies show significant risk-taking in management for a return close to the benchmark of the fund analysed.

In the end, we can conclude on the negative impact of BF on individual investors unfamiliar with its concepts, our study shows the proportion of investors falling into psychological traps and therefore into potential losses or non-optimization of portfolio returns. In contrast, the BF shows a positive impact for investors familiar with the concepts and professional of finance. Knowing what we are doing is important in times of uncertainty.

The profits through the behavioural finance approach.

Ultimately, our overview of the BF concepts shows all the aspects of the impact of psychology in the investment field and mostly for the investor himself. The market efficiency is widely questioned and BF brings a more objective understanding of the markets. The institutional investors and company are mostly using these principles in their asset allocation and management, in order to overcome the market anomaly, but also to refine their search for securities and thus improve their performance. The studies prove that no real gains on the use of BF in asset management give a real additional gain at equivalent risk. Unfortunately, not all the individual investors have the financial power or the means to be able to adapt systems to apply BF. So, our study combines all the important aspects of the BF concepts and offer a complete overview of the BF.

The emerges from the study of BF is the understanding of self-awareness and our cognitive biases, psychological trap in which we put ourselves. Many benefits are coming from the BF approach, first for the investors themselves, as Victor Sperandeo, famous trader and index developer: *« The key to success in trading is emotional discipline. If it was intelligence, there would be many more winners.* », peoples need to know how to avoid psychologic traps would make optimize their decision process and potentially, their returns. In other words, the self-awareness of our own psychology would avoid many decision mistakes and potential losses in the financial markets.

Finally, our study has highlighted that individual investors are largely unfamiliar with the concepts of BF, and thus the risk for these people to fall into the psychological traps that we have long developed and thus reap financial losses. In the other hand, we prove the importance of the BF for the investment decision process, by the study of the investors familiar with BF, but without any mathematical model or precise strategy to follow, how could we use and apply BF? That is what we going to see next.

Recommendations

Our subject and results of our study show the importance of using or at least understand the concepts of the BF. The concepts of BF are all usable in all the investment products and all decisions we are making, in our case the use is focusing on the individual investors. The increasing number of individual investors on the market is an opportunity as a risk too, depending on the level of perception of the financial market nowadays.

The opportunity is already been taken a few years ago by the institutional investors and the benefits are then the image of these strategies. In the end, we finally proved and found the opportunity and the definite interest of the BF. However, investors need to focus on a specific strategy and practice it over a long period to control their own mental mistakes but also control the mental mistakes by the investors. The better comprehension of our psychology and mental process to take decisions will certainly help people in their strategies.

However, the literature of BF is large and many currents and elements of BF make a deep research and long. The majority of the investors do not trade stocks daily or due less, they have more long-term strategies. So, a question comes to mind:

-How could we apply these concepts?

The simplest way to apply the concepts of behavioural is by questioning yourself on your decision to invest in a stock. During these studies of cognitive biases, the economist D. Kahneman looked for ways to guard against these cognitive biases. In this case, the only solution that Kahneman recommends is the establishment of a decision-making process and to stick to these principles. The simplicity of the approach makes it effective for its own understanding of this psychology. Investors should keep in mind the answers of the following questions before making any decisions on their investment with two approaches, for stocks:

- **Why do investors buy this stock?**

Analyse the market trend and why investors are buying a stock and if this stock is over valuated.

- **What is the investment horizon?**

How many times you want to stay with the position, if you analyse a that the stock probably have difficulties next year, set a horizon of investment.

- **What is the expected rate of return?**

How many profits you are expecting to receive, the balance of your portfolio is important to balance the risk.

- **How risky is this stock within your overall portfolio?**

In order to balance the portfolio, analyse the risk of the stock you analysed and balance this risk with the portfolio, using the Value at risk models.

- **Why I want to buy this stock? (full analysis, no recommendations)**

You have to know why you want to buy this stock and the perfect answer is a deep analysis of the fundamentals of the company.

And for ETF (Exchange Traded Fund):

- Look for funds with a strong historical track record over 5-10 years
- Understand the specific risk associated with each mutual fund.

The key to successful investing is to discover and know what type of investor you are, managing an investment process and always follow the guidelines of it and put a strategy based on your profile. The behavioural factors can help your strategy and avoid mistakes.

Financial markets represent a risk of capital loss and we would like to clarify that the strategies we have developed are not intended for investment advice and they do not, in any way, ensure superior performance. Past performance is not an indication of future performance, our study and research tend to show the different possibilities of using behavioural finance.

To conclude the recommendations, this paper gives an actual overview of the use of behavioural finance concepts, and the opportunity to use it. Every investor needs to understand these concepts to avoid mistakes and potentially loses. The interest of the BF is well proven and we can only advise you to understand these concepts and apply them, by the means deployed during this document, to your investment strategies. We will finish with a Warren Bufett quote:

"Investing success doesn't correlate with IQ after you're above a score of 25. Once you have ordinary intelligence, then what you need is the temperament to control urges that get others into trouble."

References

- ODEAN T. (1998b), « Volume, volatility, price and profit when all traders are above average », Journal of Finance, 53, 1887-1934. Mangot, Mickaël. Psychologie de l'investisseur et des marchés financiers - 2ème édition (French Edition) (p. 272). Dunod. Kindle Edition.),

- ODEAN T. (1999), « Do investors trade too much? », American Economic Review, 89, 1279-1298. Mangot, Mickaël. Psychologie de l'investisseur et des marchés financiers - 2ème édition (French Edition) (p. 272). Dunod. Kindle Edition.

- FRUGIER, Alain (2016), Returns, volatility and investor sentiment: Evidence from European stock markets. Research in International Business and Finance

- Fama, E. F. (1965). The behavior of stock-market prices. The Journal of Business, 38(1), 34-105. doi:10.1086/294743

- Hirshleifer, D. (2015). Behavioral finance. Annual Review of Financial Economics, 7(1), 133-159. doi:10.1146/annurev-financial-092214-043752

- Duxbury, D. (2015). Behavioral finance: Insights from experiments II: Biases, moods and emotions. Review of Behavioral Finance, 7(2), 151-175. doi:10.1108/RBF-09- 2015-0037

- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. Econometrica, 47(2), 263-291. doi:10.2307/1914185

- Malmendier, U., Tate, G., & Yan, J. (2011). Overconfidence and early-life experiences: The effect of managerial traits on corporate financial policies. The Journal of Finance, 66(5), 1687-1733. doi:10.1111/j.1540-6261.2011.01685.x

- Maggie Fitzgerald (2020). Young investors pile stocks, seeing ‘generational-buying moment’ instead of risk. News article from CNBC

- Juliette Raynal (2020). Bourse: en pleine crise, le courtage en ligne bat des records historiques. Article from LaTribune
- Jordan, B., Miller, T., & Dolvin, S. (2015). Fundamentals of investments: Valuation and management (7th ed.). New York, NY: McGraw-Hill Education.

- Shiller, R. J. (2003). From efficient markets theory to behavioral finance. The Journal of Economic Perspectives, 17(1), 83-104. doi:10.1257/089533003321164967

- Cours de l'or: un bond de presque 7% en avril. Laurent Schwartz. Article from comptoir national de l'or. (4th may 2020)

- Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency (1993) - Narasimhan Jegadeesh and Sheridan Titman - Journal of Finance, vol. 48, issue 1, 65-91

- De Bondt, W., Thaler, R. (1985). Does the Stock Market overreact? Journal of Finance. 40, 739-805.

- GRINBLATT, M & HAN, B. « Disposition Effect and Momentum Profit », UCLA Anderson Graduate School of Management manuscript, 2001.

- Phillips, L. D., & Edwards, W. (1966). Conservatism in a simple probability inference task. *Journal of Experimental Psychology, 72*(3), 346–354.

- Marina Nikiforow, (2010). "Does training on behavioural finance influence fund managers' perception and behaviour?" Applied Financial Economics, Taylor & Francis Journals, vol. 20(7), pages 515-528.)

- Thaler Richard (1985). Mental accounting and consumer choice. Marketing Science, Vol.4, No. 3 (summer, 1985), pp. 199-214

- J. CHOI, D. LAIBSON and B. MADIRAN (2009). "Mental accounting in portfolio choice: Evidence from a flypaper effect". American Economic Review 2009, 99:5, 2085–2095

- Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. The Journal of Finance, 25(2), 383-417. doi:10.1111/j.1540-6261.1970.tb00518.x

- Shefrin, H. M., & Statman, M. (1984). Explaining investor preference for cash dividends. Journal of Financial Economics, 13(2), 253-282. doi:10.1016/0304-405X(84)90025-4

- Thaler, R. H. (1999). The end of behavioral finance. Financial Analysts Journal, 55(6), 12-17. doi:10.2469/faj.v55.n6.2310

- A. DOURET (2015). Finance comportementale et application pratique : Analyse du fond « Degroof Behavioural value ». Louvain school of management.

- Shiller, Robert J., 1981. "Alternative tests of rational expectations models: The case of the term structure," Journal of Econometrics, Elsevier, vol. 16(1), pages 71-87, May.

- R. Shiller (1987). “Investor behavior in the October 1987 stock market crash: survey evidence”. NBER Working Paper No. 2446, (DOI): 10.3386/w2446

- Andersson, M., Hedesstrom, M., & Garling, T. (2014). A Social-Psychological Perspective on Herding in Stock Markets. Journal of Behavioral Finance, 15, 226-234.

- « Finance comportementale: l’approche JP Morgan AM » article from next-finance.net.

- Treynor, Jack L., Market Value, Time, and Risk (August 8, 1961).

- Mickaël Mangot (2008), “Psychologie de l’investisseur été des marchés financiers » DUNOD 2e edition

- Michael M. POMPIAN (2011), “Behavioral finance and wealth management, how to built investment strategies, that account for investor biases”

- https://www.quora.com/Is-self-discipline-the-key-to-success

- https://www.aaii.com/sentimentsurvey?a=update20170413

Appendices

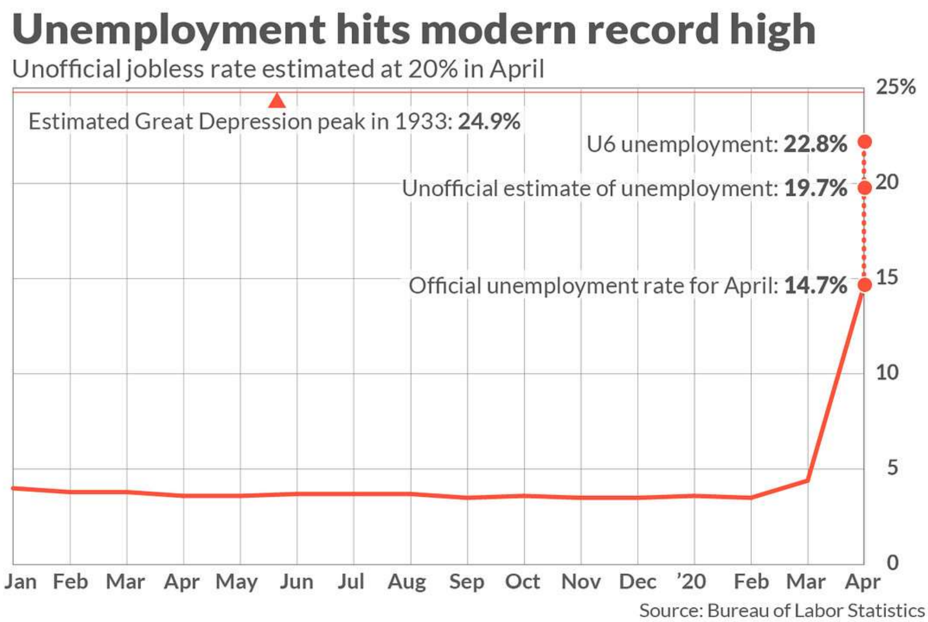


Figure 1 (unemployment rate USA, from Bureau of Labour Statistic)

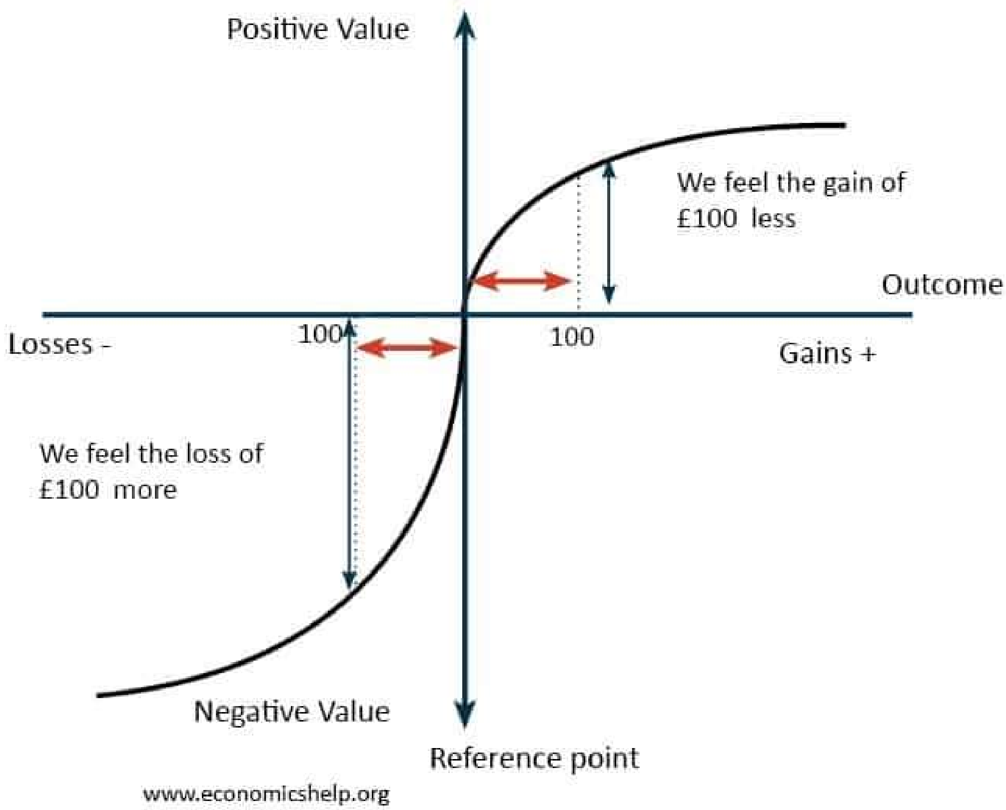
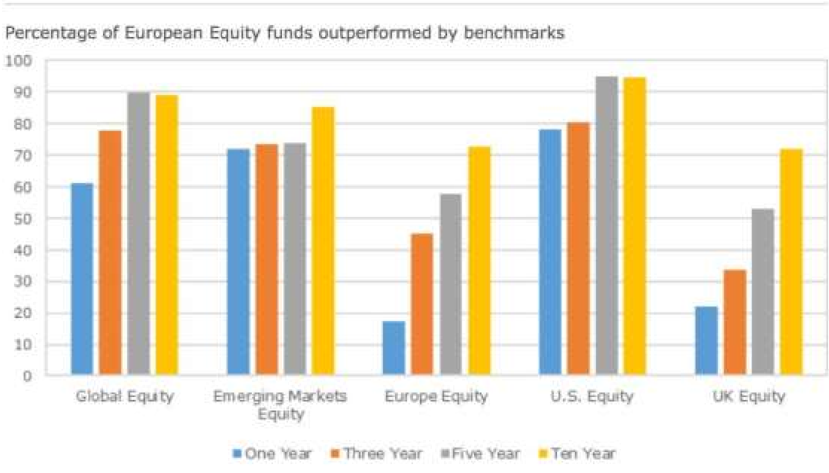


Figure 2: curve of loss aversion by Kahneman



Quelle: SPIVA Europe Scorecard 2015; 31.12.2015

Figure 3: passive strategy

Figure 4: AAII index

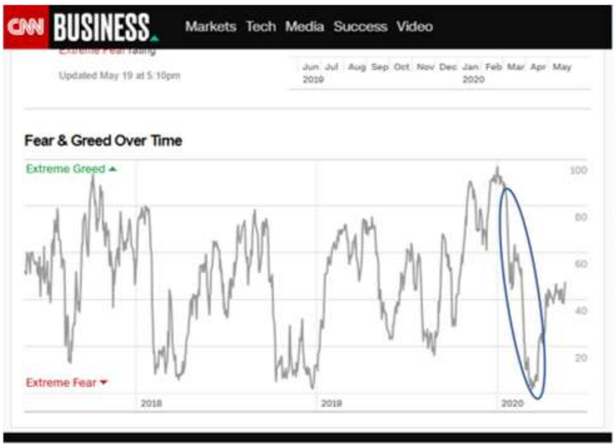


Figure 5: CNN Fear and Greed index

Figure 6: ZEW index

PART 1: SURVEY RESULTS ON THE INVESTORS NON FAMILIAR WITH BEHAVIOURAL FINANCE

Horodateur	Where do you come from?	what is your investment experience?	What is your investment horizon?	what feelings do you have of a stock you have in the portfolio, which goes up in price, but not because of its fundamentals?	Are you willing to invest in a company that sees his price going up without better fundamentals in time?	In the actual economic situation, the markets rebound, are you buying or selling?	If many people are investing stock or recommending to invest in, are you willing to buy or sell?	You have a stock with good fundamentals and bought at a good price. If this stock drop by 10%, not due to his fundamentals, are you?	Are you familiar with the concept of behavioral finance?
5/15/2020 19:55:00	Europe	less than 1 year (moins d'un an)	long term (value investing)	Stay and buy more (garder et acheter plus)	No, speculative movement (mouvement spéculatif)	Buy	Buy	Stay with the stock (garder l'action)	No
5/15/2020 19:58:42	Europe	1 to 5 years (1 à 5 ans)	Short term (swing, scalping)	Stay and buy more (garder et acheter plus)	No, speculative movement (mouvement spéculatif)	Sell	Sell	Stay with the stock (garder l'action)	No
5/15/2020 20:02:28	Africa	1 to 5 years (1 à 5 ans)	long term (value investing)	Stay and buy more (garder et acheter plus)	No, speculative movement (mouvement spéculatif)	Buy	Buy	Stay with the stock (garder l'action)	No
5/15/2020 20:05:42	Europe	less than 1 year (moins d'un an)	long term (value investing)	Stay and buy more (garder et acheter plus)	Yes, take advantage of the rise (profiter de la hausse)	Buy	Buy	Stay with the stock (garder l'action)	No
5/15/2020 20:06:21	Europe	more than 10 years (plus de 10 ans)	Short term (swing, scalping)	Stay and buy more (garder et acheter plus)	Yes, take advantage of the rise (profiter de la hausse)	Sell	Buy	Sell even with a gain. (vendre même avec un gain)	No
5/15/2020 20:07:20	Europe	more than 10 years (plus de 10 ans)	long term (value investing)	Fear and sell (peur et vendez)	No, speculative movement (mouvement spéculatif)	Buy	Sell	Stay with the stock (garder l'action)	No
5/15/2020 20:09:22	Europe	less than 1 year (moins d'un an)	long term (value investing)	Stay and buy more (garder et acheter plus)	No, speculative movement (mouvement spéculatif)	Buy	Buy	Stay with the stock (garder l'action)	No
5/15/2020 20:11:24	Africa	less than 1 year (moins d'un an)	long term (value investing)	Fear and sell (peur et vendez)	No, speculative movement (mouvement spéculatif)	Sell	Buy	Stay with the stock (garder l'action)	No
5/15/2020 20:12:51	Europe	more than 10 years (plus de 10 ans)	long term (value investing)	Stay and buy more (garder et acheter plus)	No, speculative movement (mouvement spéculatif)	Buy	Buy	Stay with the stock (garder l'action)	No
5/15/2020 20:25:31	Europe	1 to 5 years (1 à 5 ans)	long term (value investing)	Fear and sell (peur et vendez)	No, speculative movement (mouvement spéculatif)	Sell	Sell	Stay with the stock (garder l'action)	No
5/15/2020 20:39:05	Europe	1 to 5 years (1 à 5 ans)	long term (value investing)	Stay and buy more (garder et acheter plus)	No, speculative movement (mouvement spéculatif)	Buy	Sell	Stay with the stock (garder l'action)	No
5/15/2020 21:16:54	Europe	less than 1 year (moins d'un an)	long term (value investing)	Stay and buy more (garder et acheter plus)	No, speculative movement (mouvement spéculatif)	Buy	Sell	Stay with the stock (garder l'action)	No
5/15/2020 21:20:02	Europe	1 to 5 years (1 à 5 ans)	long term (value investing)	Fear and sell (peur et vendez)	No, speculative movement (mouvement spéculatif)	Sell	Sell	Stay with the stock (garder l'action)	No
5/15/2020 21:21:58	Europe	5 to 10 years (5 à 10 ans)	long term (value investing)	Fear and sell (peur et vendez)	No, speculative movement (mouvement spéculatif)	Sell	Buy	Stay with the stock (garder l'action)	No
5/15/2020 21:35:09	Europe	less than 1 year (moins d'un an)	long term (value investing)	Fear and sell (peur et vendez)	Yes, take advantage of the rise (profiter de la hausse)	Sell	Sell	Stay with the stock (garder l'action)	No
5/15/2020 21:36:04	Europe	less than 1 year (moins d'un an)	long term (value investing)	Stay and buy more (garder et acheter plus)	No, speculative movement (mouvement spéculatif)	Buy	Buy	Stay with the stock (garder l'action)	No
5/15/2020 21:48:29	Europe	more than 10 years (plus de 10 ans)	Short term (swing, scalping)	Stay and buy more (garder et acheter plus)	No, speculative movement (mouvement spéculatif)	Buy	Sell	Sell even with a gain. (vendre même avec un gain)	No
5/15/2020 21:56:12	Europe	5 to 10 years (5 à 10 ans)	long term (value investing)	Stay and buy more (garder et acheter plus)	No, speculative movement (mouvement spéculatif)	Buy	Buy	Stay with the stock (garder l'action)	No

SURVEY RESULTS PART 1 – NON FAMILIAR WITH BEHAVIOURAL FINANCE 1/2

5/15/2020 22:18:47	Europe	less than 1 year (moins d'un an)	long term (value investing)	Fear and sell (peur et vendez)	Yes, take advantage of the rise (profiter de la hausse)	Buy	Buy	Sell even with a gain. (vendre même avec un gain)	No
5/15/2020 22:30:21	Europe	less than 1 year (moins d'un an)	long term (value investing)	Stay and buy more (garder et acheter plus)	Yes, take advantage of the rise (profiter de la hausse)	Sell	Buy	Stay with the stock (garder l'action)	No
5/15/2020 22:34:30	Europe	less than 1 year (moins d'un an)	long term (value investing)	Stay and buy more (garder et acheter plus)	Yes, take advantage of the rise (profiter de la hausse)	Buy	Buy	Stay with the stock (garder l'action)	No
5/15/2020 23:01:31	Europe	less than 1 year (moins d'un an)	long term (value investing)	Fear and sell (peur et vendez)	Yes, take advantage of the rise (profiter de la hausse)	Buy	Buy	Stay with the stock (garder l'action)	No
5/15/2020 23:22:49	Europe	less than 1 year (moins d'un an)	long term (value investing)	Stay and buy more (garder et acheter plus)	No, speculative movement (mouvement spéculatif)	Buy	Buy	Stay with the stock (garder l'action)	No
5/15/2020 23:29:22	Europe	more than 10 years (plus de 10 ans)	long term (value investing)	Fear and sell (peur et vendez)	Yes, take advantage of the rise (profiter de la hausse)	Sell	Sell	Stay with the stock (garder l'action)	No
5/16/2020 1:01:50	Europe	less than 1 year (moins d'un an)	Short term (swing, scalping)	Stay and buy more (garder et acheter plus)	Yes, take advantage of the rise (profiter de la hausse)	Buy	Buy	Stay with the stock (garder l'action)	No
5/16/2020 1:34:00	Europe	more than 10 years (plus de 10 ans)	long term (value investing)	Stay and buy more (garder et acheter plus)	Yes, take advantage of the rise (profiter de la hausse)	Buy	Buy	Stay with the stock (garder l'action)	No
5/16/2020 7:46:00	Europe	5 to 10 years (5 à 10 ans)	Short term (swing, scalping)	Stay and buy more (garder et acheter plus)	Yes, take advantage of the rise (profiter de la hausse)	Buy	Sell	Stay with the stock (garder l'action)	No
5/16/2020 8:29:38	Europe	1 to 5 years (1 à 5 ans)	long term (value investing)	Stay and buy more (garder et acheter plus)	No, speculative movement (mouvement spéculatif)	Buy	Buy	Sell even with a gain. (vendre même avec un gain)	No
5/16/2020 8:36:50	Europe	less than 1 year (moins d'un an)	Short term (swing, scalping)	Stay and buy more (garder et acheter plus)	Yes, take advantage of the rise (profiter de la hausse)	Sell	Buy	Stay with the stock (garder l'action)	No
5/16/2020 9:59:29	Europe	more than 10 years (plus de 10 ans)	long term (value investing)	Fear and sell (peur et vendez)	No, speculative movement (mouvement spéculatif)	Sell	Buy	Stay with the stock (garder l'action)	No
5/17/2020 6:08:42	Europe	more than 10 years (plus de 10 ans)	long term (value investing)	Fear and sell (peur et vendez)	Yes, take advantage of the rise (profiter de la hausse)	Sell	Buy	Sell even with a gain. (vendre même avec un gain)	No
5/18/2020 9:47:27	Europe	1 to 5 years (1 à 5 ans)	long term (value investing)	Fear and sell (peur et vendez)	No, speculative movement (mouvement spéculatif)	Sell	Buy	Stay with the stock (garder l'action)	No
5/18/2020 17:37:14	Europe	more than 10 years (plus de 10 ans)	long term (value investing)	Stay and buy more (garder et acheter plus)	No, speculative movement (mouvement spéculatif)	Sell	Sell	Stay with the stock (garder l'action)	No

SURVEY RESULTS PART 1 – NON FAMILIAR WITH BEHAVIOURAL FINANCE 2/2

PART 2: SURVEY RESULTS ON THE INVESTORS FAMILIAR WITH BEHAVIOURAL FINANCE

Horodateur	Where do you come from?	what is your investment experience?	What is your investment horizon?	Are you familiar with the concept of behavioral finance?	do you find a link between your behaviors and your financial performance?	Are you using the investor feelings or investors trend in your stock picking?	How important is behavioral finance (market feeling) in your decisions and strategy?	Did you have any better performance by using Behavioural finance in your strategy?	Do you adapt your investment strategy by the market feelings? (risk, volatility, inconsistencies)	which indicators do you follow to feel the market?
5/15/2020 20:10:42	Europe	less than 1 year (moins d'un an)	long term (value investing)	Yes	NO	No	Low (not important)	No	No	les actualites..
5/15/2020 20:21:52	Europe	1 to 5 years (1 à 5 ans)	long term (value investing)	Yes	Yes	No	Low (not important)	No	No	La régularité. Niveau de ventes de véhicules lourdes aux US, taux du trésor US, Warren buffet indicator, taux de chomage aux US, croissance du nombre d'investisseur en bourse dans un marché haussier
5/15/2020 20:43:33	Europe	5 to 10 years (5 à 10 ans)	long term (value investing)	Yes	Yes	No	Medium (you are taking it in account)	Yes	Yes	
5/15/2020 20:44:47	Europe	less than 1 year (moins d'un an)	long term (value investing)	Yes	Yes	No	High (you take it as fundamental)	No	No	Pmi
5/15/2020 21:05:54	Europe	more than 10 years (plus de 10 ans)	long term (value investing)	Yes	Yes	Yes	Medium (you are taking it in account)	Yes	Yes	feeling
5/15/2020 21:31:18	Europe	more than 10 years (plus de 10 ans)	Short term (swing, scalping)	Yes	Yes	Yes	Medium (you are taking it in account)	No	Yes	analyse graphique, trend
5/15/2020 21:45:40	Europe	1 to 5 years (1 à 5 ans)	Short term (swing, scalping)	Yes	Yes	Yes	Medium (you are taking it in account)	No	Yes	Analyse technique
5/15/2020 21:46:03	Europe	more than 10 years (plus de 10 ans)	Short term (swing, scalping)	Yes	Yes	Yes	Medium (you are taking it in account)	Yes	Yes	Dow jones
5/15/2020 22:29:18	Europe	5 to 10 years (5 à 10 ans)	Short term (swing, scalping)	Yes	Yes	Yes	High (you take it as fundamental)	Yes	Yes	Forum
5/15/2020 22:36:23	Europe	5 to 10 years (5 à 10 ans)	long term (value investing)	Yes	Yes	Yes	Medium (you are taking it in account)	No	Yes	Cac
5/15/2020 23:08:34	Europe	1 to 5 years (1 à 5 ans)	Short term (swing, scalping)	Yes	Yes	Yes	Medium (you are taking it in account)	Yes	Yes	Inflation
5/15/2020 23:51:21	Europe	less than 1 year (moins d'un an)	long term (value investing)	Yes	Yes	Yes	Medium (you are taking it in account)	No	Yes	Earnings forecast
5/16/2020 0:01:44	Europe	1 to 5 years (1 à 5 ans)	Short term (swing, scalping)	Yes	Yes	Yes	High (you take it as fundamental)	Yes	Yes	Rsi
5/16/2020 2:15:02	Europe	1 to 5 years (1 à 5 ans)	long term (value investing)	Yes	Yes	Yes	Medium (you are taking it in account)	Yes	Yes	Volume
5/16/2020 12:26:50	Europe	1 to 5 years (1 à 5 ans)	Short term (swing, scalping)	Yes	Yes	Yes	High (you take it as fundamental)	Yes	Yes	Rsi stochastique
5/17/2020 3:09:42	USA	less than 1 year (moins d'un an)	long term (value investing)	Yes	Yes	No	High (you take it as fundamental)	Yes	Yes	Behaviour

SURVEY RESULTS PART 2 – FAMILIAR WITH BEHAVIOURAL FINANCE

Reponses Mr V*** Mo***, banque CMB. (professional 1)

1) **Que pensez-vous des réactions du marché financier durant cette période de crise ? (Extrême volatilité, rebond, optimisme...)**

Avant crise, les marchés évoluaient à la hausse sans réels fondements en atteignant des plus hauts. Durant la récente crise, les marchés ont chuté de façon historique (entre 30% et 40%). La volatilité à bondit avec l'index du VIX à des niveaux qui atteignent ceux de la crise de 2008. Le rebond de l'économie et des marchés est évident mais des incertitudes demeurent encore sur la reprise. Va-t-elle être rapide ? lente ? ou saccadée avec le retour d'une épidémie ? Le rebond du mois de mars est marqué par des mouvements des investisseurs sur le plus bas du marché, présentant une opportunité mais le rebond c'est produit dans une période de stresse extrême sur les marchés et dans une incertitude des impactes de la crise sur les entreprises. Nous voyons encore des entreprises montrer des difficultés après la crise du COVID alors que l'environnement économique « s'améliore ».

2) **Avez-vous observé des comportements irrationnels ? (Si oui des exemples)**

J'ai pu observer des comportements irrationnels durant ces dernières semaine. Les marchés sur réagissent à certaine annonce et sous réagissent à d'autre. Par exemple, l'indice CAC40 a rebondi le lundi de plus de 5% sur la séance, avant de perdre toute cette hausse durant la semaine, alors que les relations entre les USA et Chine se dégradait. Nous avons aussi vue la réaction irrationnelle de client, par exemple, un client détenant un mandat de gestion discrétionnaire conservateur, en perte de mois de 10% au plus fort de la crise. Le client a souhaité vendre son portefeuille et clôturer son mandat de gestion. Le client ne pourra malheureusement pas récupérer ses pertes...

3) **Quelle position votre société prend en ce moment vis-à-vis des marchés ? (Offensif ou défensif et pour quelles raisons)**

Notre banque dispose de client privé patrimoniaux. Leur principal objectif est de sécuriser leur patrimoine. Notre position est plutôt prudente et défensive. L'environnement étant sujet à l'incertitude et à de forte volatilité, nous prenons des dispositions défensives.

4) **Pensez-vous que les mouvements de marché en cette période peuvent s'expliquer par la finance comportementale ?**

Oui, pour les investisseurs particuliers seulement. Nous avons vue une augmentation des l'activités des portefeuilles non gérer de notre banque, lors de la forte baisse des marchés et encore actuellement, les investisseurs sont à la recherche d'opportunité, dans un marché qui ne prend pas de direction claire.

5) **Quelle est votre point de vue sur, l'entrée dans le marché de nombreux investisseurs sur cette période ? (Risque ou opportunité ?)**

Je pense que cette stratégie peut être payante uniquement pour les investisseurs avertis. En effet, cela permet aux investisseurs d'entrer à des niveaux historiquement bas. Les marchés vont revenir dans un futur proche aux niveaux de fin 2019/début 2020. Des belles perspectives de gains sont à prévoir. La relative euphorie des marchés de ces derniers jours suite aux publications de l'avancement sur la recherche contre le COVID-19 permet de nous rassurer sur l'évolution future des marchés.

En revanche, beaucoup d'incertitudes demeurent, notamment :

- Quand les scientifiques trouveront un remède efficace contre le Corona virus ?
- Va-t-il avoir une nouvelle épidémie ?
- Comment vont évoluer les relations Sino-Américaines ?

Ces vecteurs seront selon moi les principaux facteurs de stabilisation/hausse des marchés.

6) **Utilisez-vous les principes de la finance comportementale dans votre gestion ? (Pas de précision dans le processus juste oui ou non et quels intérêts en tirez-vous)**

Oui. Nous utilisons certain indicateur de tendance du sentiment de marché, tel que le VIX, pour contrôler nos prises de décision, la gestion de patrimoine de nos clients passe par une sécurisation des actifs et une minimisation du risque pris.

SURVEY RESULTS PART 3 – INVESTMENT PROFESSIONAL 1

Interview Study. Nic*** Red** (amun**) (professional 2)

Questions interview (questions développées)

1) **Que pensez-vous des réactions du marché financier durant cette période de crise ? (Extrême volatilité, rebond, optimisme...)**

Je pense que les réactions des marchés vis-à-vis de cette crise ont été assez normales, on était dans une période d'incertitude global sur l'économie. Tous les acteurs économiques étaient touchés et le sont encore, c'est pour cela que l'ensemble des marchés ont plongé et ont a subi une période de volatilité extrême. Il n'y avait aucunes bonnes nouvelles et cela a augmenter cette incertitude et la baisse des marchés jusqu'à obtenir de meilleurs nouvelles. Le rebond économique ne se fera pas, je pense, de façon rapide mais plutôt progressivement. Nous n'aurons pas de rebond en V car les consommateurs ne regagnent pas la confiance à la fin du confinement et le risque que la demande soit faible peut exister pour certaines industries.

2) **Avez-vous observé des comportements irrationnels ? (Si oui des exemples)**

La vente massive au début de la crise m'avait paru irrationnel au début mais avec du recul on était clairement dans une situation d'incertitude et au fur et à mesure des jours et des baisses continus j'ai bien compris que l'économie aurait du mal à se relancer. Hormis cela les positions des investisseurs ont été rationnels.

3) **Quelle position votre société prend en ce moment envers les marchés ? (Offensif ou défensif et pour quelles raisons)**

Nous sommes principalement en position haussière et mettons en avant nos produits ESG et green impact qui deviennent de plus en plus en vogue compte tenu de la situation.

4) **Pensez-vous que les mouvements de marché en cette période peuvent s'expliquer par la finance comportementale ?**

Je pense que oui c'est un comportement et un sentiment des investisseurs qui ont anticipé les baisses d'activités dans l'ensemble des industries. C'est un réflexe d'incertitude qui a fermé les positions.

5) **Quelle est votre point de vue sur, l'entrée dans le marché de nombreux investisseurs sur cette période ? (Risque ou opportunité ?)**

Ils n'ont cherché que l'opportunité à la baisse des marchés et vont chercher le rebond positif. Cela dépend des montants investis et la durée de leur position mais je pense que c'est globalement du risque. Certains d'entre eux vont également contre la tendance et sont assez novices sur les marchés ce qui peut fonctionner dans des périodes de forte volatilité mais je ne sais pas si ces acteurs vont rester sur les marchés et être de nouveaux clients pour des professionnels.

6) **Utilisez-vous les principes de la finance comportementale dans votre gestion ? (Pas de précision dans le processus juste oui ou non et quels intérêts en tirez-vous)**

Oui c'est pris en compte bien évidemment et cela aide à comprendre la tendance ou l'anticiper.

INTERVIEW RESULTS PART 3 – INVESTMENT PROFESSIONAL 2