Ca' Foscari University of Venice

Master's Degree Program

in Finance

Final Thesis

Retail Investors Misbehavior: A Behavioral Economics and Legal analysis of the KID.

r/WallStreetBets: A case study

Supervisor
Ch. Prof. Andrea Minto

Graduand
Emiliano
Garlini
Matriculation Number 857233

Academic Year
2020 / 2021

To my dear friend Gufo,
that first introduced me to
the world of Finance.

PAGE INTENTIONALLY LEFT BLANK

SUMMARY

ABSTRACT **7**

INTRODUCTION **9**

CHAPTER 1 – BEHAVIORAL FINDINGS AND POLITICAL RATIONALE **13**

1.1 - BEHAVIORAL ECONOMICS AND LAW 13
1.2 - BEHAVIORAL FINDINGS 14
1.2.1 - Probability issues *16*
1.2.2 - Prospect Theory *19*
1.2.3 - Egocentrism and Confirmation Bias *21*
1.2.4 - Other relevant biases. *23*
1.3 - EMPIRICAL EVIDENCE IN INVESTORS BEHAVIOR AND POLICY RATIONALE 25
1.3.1 - Empirical Evidence *25*
1.3.2 - Regulation rationale and liberal position on Behavioral laws *30*

CHAPTER 2 - THE KID **35**

2.1 - THE ENVIRONMENT 35
2.1.1 - Motivation of PRIIPs regulation *39*
2.2 - THE KID 41
2.2.1 - General Points and definition *41*
2.2.2 - Example of a KID *44*
2.3 - CRITIQUES 56

CHAPTER 3 - AN EXAMPLE OF RETAIL INVESTORS' BEHAVIOR: THE GAME STOP FRENZY AND R/WALLSTREETBETS **63**

3.1 - R/WALLSTREETBETS 64
3.1.1 - Third places *65*
3.2 - GAMBLE BEHAVIOR AND THE GAMESTOP FRENZY 69
3.2.1 - GameStop *71*
3.3 - BEHAVIORAL ANALYSIS 73
3.2.1 Behavioral Regulation Issues *79*

CONCLUSIONS **83**

REFERENCES **86**

LEGISLATIVE SOURCES 92
PRESS SOURCES 94
WEBSITES 99

ACKNOWLEDGMENTS **103**

Abstract

This thesis develops an analysis of the Key Informative Document as required by the European Commission, analyzing the relevant Behavioral Economics and Law literature in order to understand the rationale behind this law alongside the relevant impact assessments produced by the European Commission. The thesis will conclude with an analysis of retail investors' misbehavior in the context of an online forum, which recently became famous following the events that saw the participation in the markets of large crowds of investors.

PAGE INTENTIONALLY LEFT BLANK

Introduction

The Covid-19 pandemic has kept most of the world's population at home for more than one year, limiting the time and cash spent in leisure activities. As a result, many people found themselves bored at home and with an increased excess of cash, many young people overcame the boredom of the period by getting into the financial realm and approaching the world of investments.

Helped by the financial surplus and the presence of an increased number of cheap brokerage applications, which surely reduced the barrier to enter that world, they became interested in speculative positions in order to gain large returns, pumped by the quick recovery after the market crash of March 2020, they got caught by the informal and easy way of communication on certain internet forums, that, as we will see, became the peculiar point for many retail investors of gaining financial related information.

If young people approaching this world in order to get a sounder financial future may at first sight seem good for the democratization process in the markets, these inexperienced investors are prone to many Cognitive issues.
Since the 1960s, the field of Behavioral Economics has grown in relevance in academic studies and has highlighted the main biases from the standard economic rationale that people have when making decisions, both inside and outside of the financial realm. These kinds of issues may potentially be disruptive when a wide crowd of investors act together either for their financial positions or for the well-functioning of the markets.

In more recent years, jurists have also developed an interest for these questions, which led to the development of what is called "Behavioral Economics and Law". We will try to see what has been done and what still could be done in order to address these behavioral issues from a legal point of view.

Indeed, according to these issues, it is the responsibility of the regulators to intervene to try and limit the potential losses that these kinds of misbehaviors

could generate for people's finances and the well-functioning of the market. The European Regulator has implemented an exemplary piece of behavioral law for the financial realm, called the Key Informative Document, which aims to undermine several issues for the retail investors that their reduced knowledge of the issues of the market and the related products could have, by requiring intermediaries to produce such an informative document to present to the investors containing the information the EU considers essential for them, based on several behavioral studies they commissioned.

We will therefore investigate how acting in such a way is somehow controversial for governments from a political standpoint through the effectiveness of such a regulation in the financial markets. The costs for the intermediaries could be higher than the actual implicit benefits for the investors, who, on their side, may not be responsive enough to such a law that may not address the points they need in order to overcome these issues.

In the first chapter of this thesis, we will analyze the Behavioral law and economics findings in literature from the beginning to the latest discovery, analyzing the topics that could affect retail investors. We will then analyze a research commissioned by the European Union on that matter, that was the foundation for the behavioral regulation in the Keys Informative Documents (KID), that tested thousands of consumers through the Union and gave many informative insights for the regulator. We will conclude by trying to give a political sense of these kinds of laws within the political spectrum, analyzing how these laws fit into the liberal and neo-liberal political doctrine and what points these theorists have moved in that regard.

The second chapter will analyze the preliminary work for the KID that rolled out alongside the MiFID 2, analyzing why the Regulator believed there was the need for a proper regulation for certain complex products on top of other preexisting regulations. We will then analyze the behavioral points they address looking at an exemplary document that fits the regulation in order to further see what the

benefits may be in their behavioral and general application for retail investors. The chapter will conclude by addressing many issues we find in how these documents were conceived alongside the critiques the industry has found in the application of the regulation by analyzing different documents moved from intermediaries and academics, who doubt the effectiveness of these documents for consumers.

The third and last chapter will then aim to exemplify the behavioral issues presented above, analyzing a case study of investors' misbehavior in the markets, driven by the huge popularity of a forum on Reddit of financially related sections. These subreddit communities gather millions of people who could potentially misbehave due to their cognitive biases, and if they all act together, the effect on the market of a combination of these biased investors could be disruptive, as illustrated by the recent case of the frenzy around the GameStop stock. We will analyze these topics trying to see which biases are the most common among them, and how the KID may help or not to overcome the issues.

In the conclusion we will sum up the findings of this work, trying to see what regulations should or should not do in order to overcome these many issues.

PAGE INTENTIONALLY LEFT BLANK

Chapter 1 – Behavioral Findings and Political Rationale

1.1 - Behavioral Economics and Law

Historically, the core of behavioral analysis of law was influenced by the postulates of classic economic theory. Behavioral insights have grown (with some reticence) into mainstream economic studies,[1] forming the field called Behavioral Economics, which eventually led to two Nobel Prize Laureates for Economic science.[2]

Since jurists and lawyer-economists are interested in real-world applied social sciences and were not satisfied with the standard understanding of human behavior when engaging in policy analysis and advice regulators, they watched the development of the economic doctrine with interest, which led to an emergence of what is called Behavioral Economics and Law.[3]

The interdisciplinary approach of economic analysis of law was developed following the two main economics' research approaches: positive and normative.

Positive economics aims to understand and explain human behavior and the social consequences of it, rather than how humans should behave (and which legal approach should be taken as consequence). Normative economics, also referred to as welfare economics, is more of a moral theory and aims to understand which policies the government should pursue to, for instance, increase the social utility by regulating human behavior.

Both approaches tend to use microeconomic and game theory models to explain human behavior, but these models usually diverge from reality since they

[1] For reference, see, generally: Eyal Zamir, Doron Teichman, "*The Oxford Handbook of Behavioral economics and the law*", 2014.

[2] Daniel Kahneman in 2002, a psychologist, and Richard Thaler in 2017, an Economist, for their contributes in the developing of Behavioral Economics theories.

[3] Guido Calabresi, "*The Future of Law and Economics*", 2016.

have the need to simplify the actual processes that lead to issues regarding the actual understanding of human behavior.

Behavioral Economics has grown in academic and practical interest to undermine these issues, drawing notions from studies in other fields, such as Psychology and Sociology as a tool to better understand human behaviors and choices. The main point of these theories is assuming that Humans are not rational utility-maximizers in their economic actions. This contrast with the classic economic models,[4] which extensively predict how the economic agent, also referred to as "*Homo Oeconomicus*", is believed to behave to maximize his utility having no information asymmetries, processing all new information about a transaction in a statistically correct way, leading to an optimal result. In the classical economics theories, humans maximize their utilities, i.e., their actions will lead (rationally) to the best outcome they may get and when they act according to this rational approach, they will lead to an equilibrium that maximizes the utility of everyone involved.
Even if Classical Economic theory does not completely ignore the eventuality of some limitation in cognitive capability, allowing humans to make small errors,[5] Behavioral Economists have dug deeper into the analysis of human beings. This caused them to begin to recognize that we often use several tricks to quicken our decision-making processes, applying what is defined as an "Heuristic", i.e., a mental process that often leads to non-optimal results in the economic realm, and they started to conceive a more "human" approach to the social sciences.[6]

1.2 - Behavioral findings

We will now start to analyze the development of literature in the Behavioral

[4] The so called "Standard Decision Model" or" Expected utility theory".
[5] For instance, consider the Game Theory applied to the most classical microeconomic theories that recognizes some degree of cognitive limitations.
[6] After Behavioral Economics started to grow into the academic field, many other related social sciences started to grow interest in a behavioral approach to their disciplines.

Economics and Law field, focusing on the topics that will come in handy to describe the behavior of investors and the consequent regulations that have or could have been made to protect them.

In the 1950s, the psychological research in "Judgments and Decision Making" (JDM), grew in antithesis with the common standard utility theories, taking them as a (normative) benchmark for the observations they made on human behavior. Therefore, every deviation from them is referred to as a bias. Throughout the years, these studies have overlapped with many other disciplines, including economics and law. In this context, they studied the motivations that push people to behave in a certain way, those that cause them to not maximize their utility in a transaction or to break social and moral norms by disagreeing with the full rationale theories that have delineated these fields so far.

As already briefly mentioned, humans tend to use heuristics, or mental shortcuts, where the brain operates using what psychologists call "System 1" of reasoning.[7] This system of reasoning operates automatically, spontaneously and in an intuitive way with little effort, and is in contrast with "System 2", which, instead, intervenes when conscious and analytic thinking is required, in an effortful way.

In the common actions we do daily, System 1 is the most used, and is highly effective in making fast decisions. However, because of this instinctive nature, it will lead to (predictable) deviations from rational decision making: the biases. Our brains operate this way because we tend to apply effort-reduction mechanisms which simplify the weighting principles in decision making and integrate less information to the decision process thereby elaborating fewer alternatives.[8] This kind of spontaneous thinking definitely had an evolutionary significance since, as hunter-gathers, our ancestors did not have the time to overelaborate many of the decisions that needed to be taken in the fastest and

[7] For reference, see: Daniel Kahneman, "*Thinking, fast and slow*", 2011.

[8] Shah Anuj & Oppheneimer Daniel, "*Heuristic Made Easy: An Effort-Reduction Framework",* 2008.

most efficient way. In modern society, however, these kinds of reasonings led to many issues.

To understand the issues “System 1” brought into our lives we need to further analyze the literature regarding the phenomenon. Literature analyzes how these kinds of cognitive processes make individuals (mis)behave and the main biases that have emerged relevant to the scope of this work.

1.2.1 - Probability issues

The earliest studies in JDM analyzed the probabilistic assessments and statistical inferences, including our perception of uncertainty, which are the main cause of “misbehavior” in humans. Tversky and Kahneman, in their early experiments, identified what they called “Conjunction fallacy”,[9] which basically defined the issue that the individuals who were tested had to recognize basic probability rules[10] by means of what they defined “Representativeness Heuristic”. Those who fall victim to this kind of heuristics tend to assess probability by “The degree to which it is: *(i)* similar in essential properties to its parents' population; and *(ii)* reflects the salient features of the process by which it is generated.”[11] This is the basic issue in every miscalculation of probability since we tend to believe that the representativeness of an event in our perception makes it statically more relevant.

From this assumption, other experiments defined the so called “Base-Rate neglect”,[12] which is an error in estimating the likelihood of an event by ignoring

[9] Amos Tversky & Daniel Kahneman “E*xtension versus intuitive reasoning: the conjunction fallacy in probabilistic judgmen*t”, 1983.

[10] See the “Linda Effect” an experiment by Tversky and Kahneman, where people tested gave a higher probability of the event P(A&B) than P(A) and P(B) taken individually, from which the name "Conjunction fallacy”.

[11] Kahneman A. & Tversky D. “*Subjective probability: a Judgment of Representativeness*”, pages 430, 431, 1972.

[12] Maya Bar-Hillel & Efrat Neter “*The Base-Rate fallacy in Probabilistic Judgments*”, 1980.

the frequency by which the referred event usually happens. This bias is strictly related to the so called "Insensitivity to Sample Size" and "Law of Small Number",[13] the misunderstanding of the basic statistical concept that the larger the sample number, the closer it is to the actual population and *vice versa* the smaller the sample, the higher the probability that tail events (relevant deviation from the mean) will happen. We can place the so called "Gambler's fallacy" [14] in the same category. This term refers to the research of pattern in random events, leading individuals to believe that they have control when gambling due to the belief that they have understood how it functions.
These statistical misunderstanding biases are terribly risky for the less educated investors, who will tend to ignore the risk they are taking because they have difficulty understanding them and make wrong assumptions on the actual risk they are taking.

People appear to have issues making correct inferences, but how do we estimate probabilities? Tversky and Kahneman argued that we tend to assess the likelihood of an event and its frequency according to the ease we have of recalling other similar events in that moment. This is the so called "Availability Effect",[15] which can lead to many errors in judgment since we tend to give more weight to the most recent events or more recognizable items, making them appear more significant in the inference process, instead of considering things that we have more difficulty imagining. The availability effect may be dangerous when investing since investors tend to not consider some (relevant) events while, instead, only taking into account the most recent (or better) outcomes which are easier to recall. In other words, we tend to make incorrect inferences by applying our pre-existing knowledge to the event of interest instead of using the actual data.

[13] Tversky A. & Kahneman D. "*Belief in the Law of Small Numbers*", 1971.
[14] Tversky A. & Kahneman D., 1971 *supra* note 14.
[15] Tversky A. & Kahneman D., "*Availability*: "*A Heuristic for judging Frequency and Probability*", 1973.

From this, we naturally get the so called “Hindsight Bias”,[16] which is the feeling people have after the occurrence of an event. It is the “I knew it all along” feeling that makes people increase the probability assessment of that event to have actually happened if they had considered the same chances *a priori.* In other words, people are convinced that they actually and correctly predicted an event after it has happened. This may cause Overconfidence, which will be analyzed in the next paragraph, and can cause many issues in finance investing.
The last bias we want to analyze in this category is the so called “Ambiguity Aversion”[17] according to which individuals tend to prefer an alternative where they know the probability distribution rather than an uncertain one since this increases their feeling of controlling the outcomes. The most popular example of this is made by the so called “Ellsberg Paradox” which showed how when people are asked to draw a red ball from two boxes full of balls in order to win a prize, they prefer to draw from the one where they know that the balls were evenly distributed, instead of the one in which they do not know the distribution, even if they could potentially be all red.[18] It is worth noting that ambiguity goes further than the mere probability distribution. It is a wide issue which tackles comparing known and unknown outcomes.

These last biases may have significant implications in retail investors since the first gives them a disproportionate level of confidence in their skills when picking securities once they have already had a good outcome, which may lead to reckless trading. The second, instead, leads to a bad portfolio constructing decision by trying to avoid potential good new investments by geographical reasons[19] or by investing in the same industry they work in, leading to a risky miscalculation process that leads to an under diversification of their

---

[16] Baruch Fischhoff “*Hindshight ≠ Foresight: The effect of outcome knowledge on Judgment under uncertainty*”, 1975.
[17] Daniel Ellsberg, “*Risk, ambiguity, and the savage axioms*”, 1961.
[18] Ellsberg, *vedi supra,* 1961.
[19] The so called “Home Bias” i.e., the tendency for many investors to buy stocks strictly related to their living place. For evidence on correlation of ambiguity aversion and home bias, see Florian Massé, “*Ambiguity aversion and the Home-bias puzzle”,* 2017.

investments.[20]

1.2.2 - Prospect Theory

Another relevant point useful to model people's decision-making processes under uncertainty is yet again by Kahneman and Tversky and their studies on what they defined as the "Prospect Theory".[21]

The main aspect these studies pointed out are related to the risk aversion of individuals. They found out that most people prefer a secure outcome than a bet into an uncertain one even if the expected value of the latter is exactly the same. Thus, for instance, most people would prefer to have €500 for sure instead of taking part in a gamble where they would have a 50% chance of gaining €1.000, even if the two choices under a full-rationality assumption should be equivalent. In other words, people tend to have a different sensitivity in the domain of gain and in the domain of losses, and usually the disutility for losses is greater than the utility produced by a similar "symmetric" gain.
This kind of bias, which induces people to be averse to loss, explains certain financial events such as the so called "Equity Premium Puzzle",[22] which is the preference of investors to buy treasury bills instead of equity, preferring a lower return in the former than a potential higher one in the latter, which may have more volatility and the consequent risk of losing money in the short run. The recent events in the stock market, such as the frenzy some young investors have shown into buying high-risk derivatives on certain stocks or the so called "alt-

---

[20] It is riskier to invest in the same sector as you are working in, or industries in your country/economic region, since in the eventuality that certain problems, e.g., government crisis, or general decline of the industrial sector, your revenue stream will be relegated to only one context and will make your financial crisis even tougher.
[21] Tversky A. & Kahneman D. "*Prospect theory; An analysis of Decision under Risk*", 1979.
[22] Shlomo Bentarzi & Richard H. Thaler "*Myopic Loss aversion and the Equity Premium Puzzle*", 1993.

coin”[23] in the hope of a large-and-fast profit, may pose some doubts on the effective relevance of this “Loss aversion” bias or, at least, that there are some issues when it comes to understanding the real consequences of their financial actions.

Many other implications and biases have been derived from Prospect Theory, such as the “Reference-Dependence”[24] as well as the “Framing Effect”.[25] These are two similar biases where individuals perceive the value of an action in different ways according to how the issue is presented (the Framing Effect). In this case, the different ways of enunciating the same problem can lead to drastically different outcomes. This may be an issue for investors in the case where a differently disclosed investment opportunity leads to different allocation choices that may be dangerous for their financial wellbeing or induce incorrect judgments in misleading advertising.[26] Reference-Dependence may also lead to risky outcomes since people tend to change their reference point to value their loss aversion (as we already saw in the Prospect Theory) according to the context they are found in.[27] Investors may, for instance, be reluctant to exit from a trade after they have won a significant amount, and thus their reference point may change (relative to their initial position). However, they are reluctant to do it when incurring in a loss, which, on the other side, may actually be even more

[23] Alt Coins, are alternatives cryptocurrencies, usually sold for under a dollar of unitary value, with little market caps, that often experience high volatility events and have gained the attention of many retail investors lately, see for instance the “DogeCoin” issue. For reference see, for instance: https://www.wsj.com/articles/dogecoin-traders-whip-up-doge-day-frenzy-in-push-toward-1-11618842535

[24] Botond Köszegi & Matthew Rabin “*Reference-Dependent Risk Attitude*”, 2007.

[25] Tversky A. & Kahneman D. “T*he Framing of Decision and the Psychology of Choice*”, 1981.

[26] A trivial example is a trading platform that advertises “40% of our clients makes money” will surely be more appealing that “60% of our clients lose money”, and that’s why different regulators require the latter enunciation in their websites.
It is worth noting that the Framing Effect is a very relevant issue in the stricter law field as well, since a Judge may misjudge the problem from the way the issue is presented to him.

[27] As an example, getting the lowest increase on wage in a group of peers, may make it feel like a loss (even if there is a net gain), because of the new reference point (the other’s higher increase) to value their loss.

dangerous.[28]

Strictly related to this is the "Status Quo Bias",[29] where people tend to not take active actions that change their actual situation, even if it may lead to a better outcome. This explains the reticence of many traders to make a simple change that may lead to better results than the previous allocation in the case they were already making profits.

This will lead to the latest Prospect theory bias of our interest called the "Sunk Cost Bias"[30] where people give too much weight to their past costs (that are irrecuperable at the time of making the decisions) and stick with said project.

In a trading example, an investor that gave too much weight to the past losses, will keep his attention on that losing position instead of looking for an exit even if the chances of a positive outcome are slim.

The perceived loss and gain perception biases, related to the misunderstanding of statistical issues, are related to the perception of risk and the implication of the action taken in a context of uncertainty. The next sections will inquire some biases that have different causes.

1.2.3 - Egocentrism and Confirmation Bias

Another category of behavioral biases that is interesting in order to understand the behavior of investors and the consequent policies that should be taken to limit them, are related to what is usually called "Confirmation Bias", and, in general, the one related to the egocentrism of the individual.[31]

---

[28] Hal R. Arkes et al. "*Reference point adaptations: Tests in the domain of Security Trading*", 2008.

[29] Tversky A. & Khaleman D*. "Status Quo Bias in decision making*", 1988.

[30] Hal R. Arkes & Catherine Blumer "*The Psychology of Sunk Costs*", 1985.

[31] The main studies in the field are by Leon Festinger, "A *Theory Of Cognitive Dissonance*", 1957 and Peter Wason "*On the failure to Eliminate Hypotheses in a Conceptual Task*", 1960.

Confirmation Bias[32] is derived from the so-called motivated reasoning, which is a cognitive process that utilizes System 1 and System 2 of thinking simultaneously. The interplay between them will tend to carry the judgment forward only until the point that confirms their initial belief or expectation. This causes people to ignore disproving evidence of their initial belief and only see in the data what confirms their pre-existing belief. This kind of reasoning, also defined as "defensive confidence", has clear consequences in the behavior of day traders. In fact, as we already saw in a similar way in other cognitive issues, the risk is that even in front of the clear evidence that a negative outcome is associated with their positions, they will tend to keep them steady and search for the information that confirms their original expectation, in the hope to eventually reverse the situation and not destroy their initial belief. This may be even more risky in the beginning of the research phase for a trade, where one tends to look online or in their community of reference for information about the deal they are about to make and try to ignore every signal that their idea may be, after all, not so brilliant.

Confirmation bias (and as we already saw, Hindsight bias) leads to the so called "Overconfidence",[33] which, as the name suggests, is the tendency in people to overestimate their ability to complete a task by believing that they are able to complete it with a higher degree of confidence than the actual performance they will have, probably because of the inability to assess the actual difficulties or complexity of it *a priori*. If Overconfidence generally has beneficial effects in social interactions, it is also true that it may lead people astray in certain activities such as investing in complex products, believing to be better than the average[34]

[32] Raymond S. Nickerson "*Confirmation Bias: A Ubiquitous Phenomenon in many Guises*", 1998.

[33] Micheal T. Moore & David M. Healy. "*The trouble with overconfidence*", 2008.

[34] "Better-than-average" effect and "Overoptimism" are two different points that the literature evidenced in that area, but since they are strictly related to overconfidence, we will not discuss them for the sake of shortness. For references on those two issues, see Paul D. Windschitl & William O'Rourke Stuart, "*Optimism Biases: Types and Causes*" 2015 and Justin Kruger & Alicke, "*Global Self-Evaluation as Determined by the Desirability and Controllability of Trait Adjectives*", 1985.

(here we find egocentrism) and feeling super-secure in financial decisions to the point of entering in difficult or risky transactions which one believes they have understood or that they are able to manage.

The last bias we are interested in analyzing in this macro category, is the so called "Illusion of Control",[35] which is the tendency to attribute success to oneself and failure to other factors which leads people to believe that they can predict and control the outcome better if they make the action themselves instead of someone else. This is dangerous because many financially illiterate traders may want to retain the decisions they make on their allocation instead of allowing a third party, namely a financial advisor to do it. This third party could apply a more quantitative approach that does not take into account (most) of the disclosed biases and stay calm and rational during the transactions they make due to a reduced emotional attachment to the money and a sounder financial education. However, it is worth noting that nobody is totally immune to any of those biases[36] and so it may be better to make sure that even individually, consumers will try to do what is best for them, nonetheless.

1.2.4 - Other relevant biases.

Behavioral Economics and Law has carried out many other studies on the most varied kinds of human behaviors. Among these we would like to pick a further few of great interest which will come in handy in the later discussion of certain topics.

The first one worth remembering is the so called "Anchoring Effect"[37] which is the tendency to focus on a certain value (the anchor) when making estimations

---

[35] Ellen J. Langer "*The Illusion of Control",* 1975.

[36] Nickerson, see *supra note* 28, exemplifies this issue saying that, for instance, the soundness of the scientific method is not led by the open mind of scientists who try to falsify their own research, but rather because they try to falsify the findings of others in order to confirm their own, and those issues are rooted in Confirmation Bias.

[37] Daniel Kahneman, *supra note* 8 119-20.

on something (mainly numerically). After being asked to estimate a figure and being exposed to a random, irrelevant other number, people tend to stick to it when making estimations, and this altered their actual choice.[38] In the same manner, and strictly related to the already discussed Confirmation Bias, we have the so called "Primacy Effect"[39] and "Recency Effect"[40] which are the tendency to give, respectively, more weight to either the first information given or the last, ignoring the middle ones.

Somehow related to the Prospect Theory issue is the "Diminishing Sensitivity"[41] topic, since it demonstrates even further the decreasing marginal effect on gains and losses the more they move from their initial reference points, and it explains why a gain of €10 on a €50 product leads to a greater increase in perceived utility that saving €50 on a €3.000 one. This may be risky since it will lead to underestimate the effect on losses in absolute value in day trading, still allowing retail investors to stick to their positions even if the nominal movements are relevant.

Likewise, referring to the same subject is what is called "Myopia",[42] which is a further analysis of inter-temporal preferences. This highlighted people's difficulty to properly discount the time factor connected to gains. For example, the utility perceived is higher when receiving €100 today than €200 in a month, but not if the same transactions happen in one year and one year and a month, and indeed the perceived utility between the two will be somehow similar. This is explained by the increased uncertainty that comes with chronologically distant events rather than closer ones, which has implications in many different aspects of

---

[38] Tversky A. and Kahneman D., *supra note* 16, pag. 1128.

[39] Solomon Asch, "*Forming Impression on Personality*", 1946.

[40] Alison Hubbard Ashton & Robert H. Ashton "*Sequential Belief Revision in Auditing*" 1986.

[41] Emir Kamenica, "*Contextual Inference in Markets; On the Informational Content of Product Lines*", 2008.

[42] George Loewenstein & Ted O'Donoghue, "*Time discounting and Time Preference: A Critical Review*" 2002.

human life.[43] In markets, this presents an issue when people decide not to save for their retirement but instead "gamble" their savings with the promise of some quick and huge gains in speculative plays.

As the last issue, we will consider another bias, which this time refers to the aggregate behavior of investors instead of individuals. It is the so called "Herding effect",[44] or the tendency of following the behavior of others, led by the inclination to follow social influences that trigger in people the fear of missing out on certain opportunities (FOMO). This kind of reasoning is explained by the natural belief that the other person must be right as well as the desire to find a leader in an uncertain situation, for example a guru. Herding effects were found to be the main trigger for many "bubbles" in markets or exuberance-mania in certain products that, with the growing impact of "financial influencers" on social media, may be increasingly an issue in the future.

1.3 - Empirical Evidence in Investors Behavior and Policy rationale

Those previously disclosed are briefly the most significative biases that may result handy for the topic we want to discuss, namely the Key Informative Documents that investors receive when entering a complex financial transaction, since, as we will see in the following paragraph, this is the main tool that European legislator decided to use to try to overcome behavioral biases in their consumers.

1.3.1 - Empirical Evidence

To see the reason behind this, let us analyze an interesting and very

[43] For Instance, smoking or eating unhealthy foods, that have no clear impact in the short term, but are harmful in the long one.
[44] Abhijit Banerjee. "*A simple model of herd behavior.*" 1992.

comprehensive study[45] commissioned by the European Union Lawmakers in the preparatory work[46] of MiFID 2,[47] which tested around 6.000 consumers, representatives of different nationalities, genders, and ages, through the EU, with an online survey made to point out behavioral biases in individual investors.

They aimed to verify if the many systematic deviations illustrated in behavioral literature, such as the framing effect, loss and ambiguity aversion etc. were a constant in consumer preferences, which, in the section of the experiment we aim to analyze, considered the non-advised investments decisions. Alongside the test of the biases, they also wanted to test some policies that aimed to improve the quality (according to the full-rationale base) of the decisions. The experiment consisted in the request of allocation of virtual funds into different proposed strategies (so without considering "search-cost") to see if they were able to optimally allocate them. The test consisted in a brief survey on their self-assessed financial literacy, education, risk aversion, and a short quiz to actually test their financial knowledge. Every one of the five tasks that was presented was designed to find evidence of several behavioral biases using fixed instruments, equity-linked investments, and other more complex products. The optimal allocation was defined as the one with the highest expected value, and they imply the optimal risk aversion for a rational investor.[48]

The tests empirically confirmed many of the biases the researchers predicted

---

[45] Decision Technology Ltd, Nick Charter, Steffen Huck, Roman Inderst "*Consumer Decision-Making in Retail Investment Services: A Behavioural Economics Perspective*", 2010.

[46] COMMISSION STAFF WORKING PAPER IMPACT ASSESSMENT, Accompanying the document
Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Markets in financial instruments [Recast], 2011.

[47] "DIRECTIVE 2014/65/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 15 May 2014, on markets in financial instruments" the main legislative tool at European Level that regulate Finance Markets.

[48] For a more comprehensive disclosure on the methods used, see *supra note* 46, pages 261-265.

could appear in the population. One of the tests recognized the presence of the Framing Effect, the numerous difficulties in dealing with percentages, and the problems faced when investments were exposed in a non "fixed sum" way. Another test shows the high degree of loss aversion of many investors who decide to pay premium to ensure the sum in the investment instead of bracing the risk of losing some of their money due to volatility. Interestingly, one finding showed[49] that, according to their models, the loss aversion was mainly against some determinate kind of investing formula. In particular, equity and more structured products with a higher-than-average degree of complexity, as opposed to the simpler insurance and pension fund products, go beyond the "natural" risk aversion model made by the standard expected utility theory. In fact, when confronting these complex products, the consumers showed an abnormal amount of loss aversion when compared with the results of the other products. Investors showed a dislike for complexity as much as risk aversion (even if the more complex products give them a higher risk cover). Therefore, this led to a high misallocation of capital, as can be seen in the Figure 1 in next page, which visualizes their inferences on the so called "choice bias" that led to an average of -12,36% share of (un)optimally allocated funds.

Another interesting finding for the scope of this work is the influence of certain demographical characteristics of the tested subjects into having some bias. They found that the optimality of their allocation[50] peaked in the investors who were 45 years old, as shown in the Figure 2 in next page.

[49] See *Supra note* 42, pp. 289-290.
[50] Namely, how much they would have gained practicing their chosen allocation in a real environment.

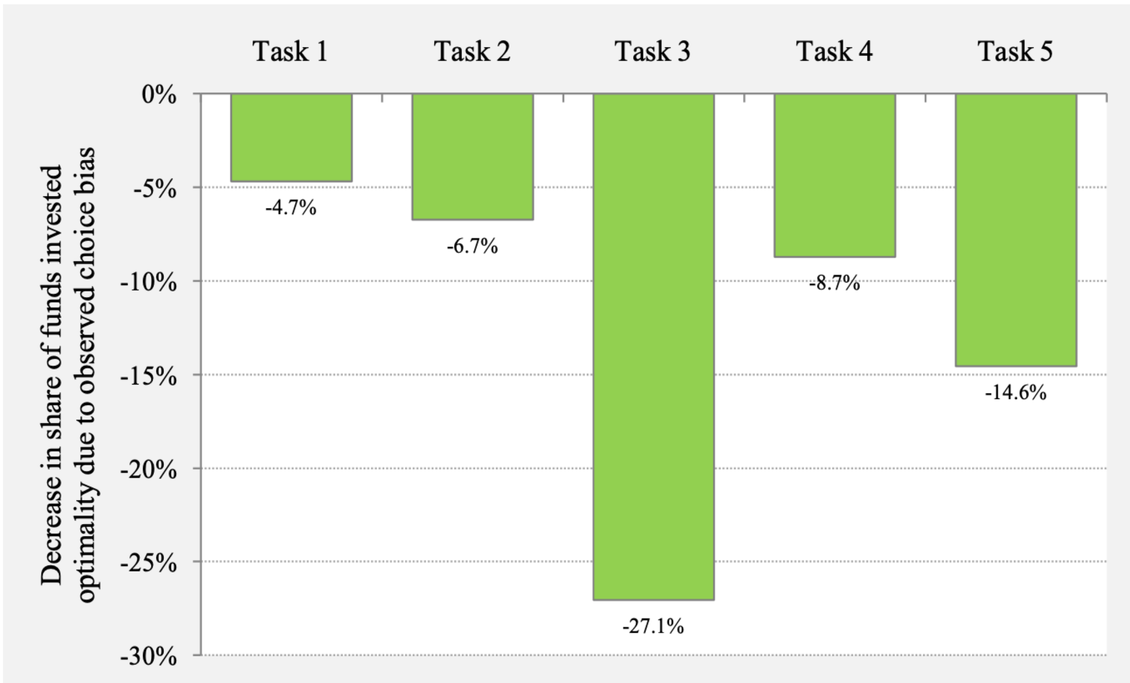


Figure 1: Relative magnitude of detriment caused by choice bias in each task. From Consumer Decision-Making in Retail Investment Services: A Behavioural Economics Perspective", 2010.

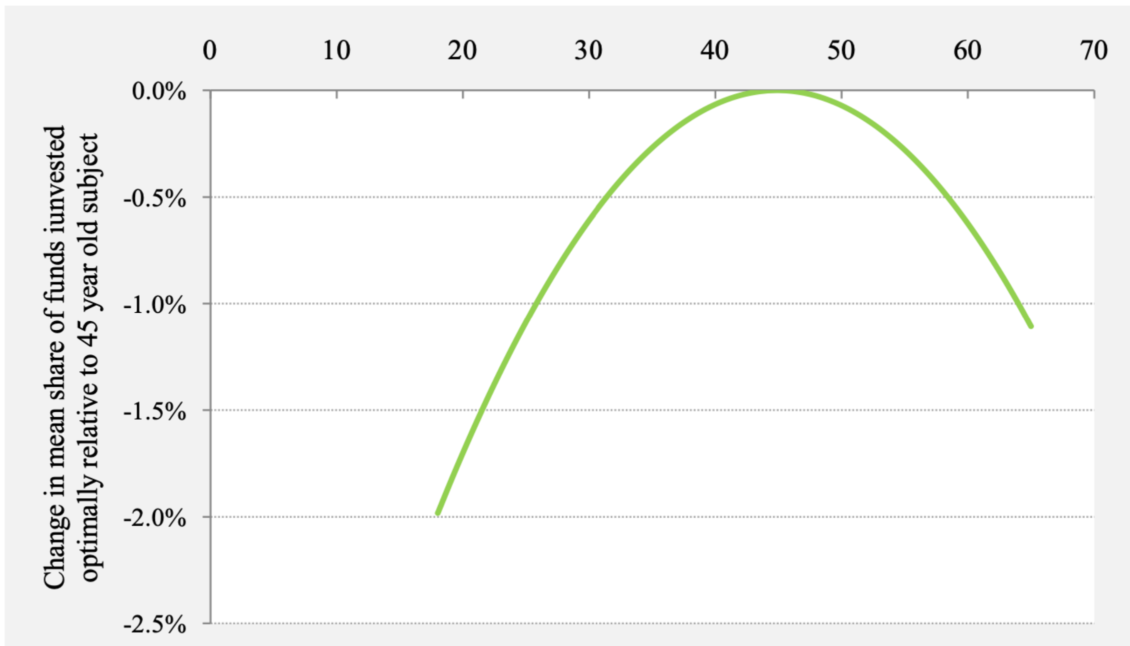


Figure 2: Estimated impact of age on share of funds invested optimally, From Consumer Decision-Making in Retail Investment Services: A Behavioural Economics Perspective", 2010.

They also highlighted that female investor struggled more in finding their optimal allocation, when compared to males with similar peculiarity in education and age.

Education is nonetheless the main discriminant between the consumers tested, where every additional year of education, led to a better allocation. An even higher increment, probably unsurprisingly, was found in those who studied math or finance.
This may be very relevant for the policy making effort, by asking the potential investors for their education in math and finance as a discriminant point to understand the actual capability in terms of comprehension in investment related issues, such as compound interest.

As previously mentioned, the survey tested several policy options to be adopted in order to undermine these biases, and it seems that the EU law makers took some of their suggestion in the writing of MiFID 2 and KIDs regulation. They mostly highlighted the necessity of a standardization for the presentation of the information of the relative product in order for it to be easier to compare them for the investors. This kind of clear disclosure led to an additional 5 percentage point of optimal allocation for those consumers who had their information more clearly presented.
This is coherent with the propulsion in consumers to avoid more complex products, and therefore a more polished presentation which avoids superfluous information surely helped them to focus on the key parameters to be considered in order to best allocate their funds. They also found out that a pre-calculation of some "objective" information such as the actual costs and prospected return also helped them to choose the optimal allocation, in accordance with both the many issues they were found to have in math - related problems and with the "probability biases" we disclosed previously.[51]
They also tested certain de-biasing actions (i.e., explaining that investors are prone to certain types of reasoning) by explaining financial terms through the

[51] *Supra note* 41, page 297.

presentation of a glossary before investing, and other types of advice in decision making (in a similar way to what a financial advisor might suggest). Eventually, they found those policies to be ineffective, and they also found no confirmation of the so called “Primacy effect” we analyzed, since the position of the information they gave them did not aid in the choosing process.

All these issues were taken into consideration by European Lawmaker who commissioned this study and since then reinforced the Key Informative Document requirements which accompany the investment products by extending the, at the time, already existing regulation to a wider range of instruments, the PRIIPs, with the introduction alongside MiFID 2 of a detailed regulation[52] regarding them. This, as we will see in the next chapter, is one of the main application points of behavioral laws in finance adopted by the EU, that took into consideration the suggestion of this analysis.

1.3.2 - Regulation rationale and liberal position on Behavioral laws

Before proceeding with the analysis of this regulation, it is worth spending a brief analysis on the type of rationale the regulators had when making the so-called behavioral policy laws and how these are collocated in the political spectrum.

Normative economic theories, as we saw at the beginning of this chapter, focus on human welfare, and have three main categories of theories: hedonistic, preference-based and objective-list theories.[53] The first one, provided that welfare is determined as the absence of pain, preference based that people’s welfare is based on the actual fulfillment of their preferences, while the latter

---

[52] REGULATION (EU) No 1286/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 November 2014 on key information documents for packaged retail and insurance-based investment products (PRIIPs).
[53] John Rawls, “*A theory of Justice 26*", 1999.

considered having certain things such as health or accomplishment as the base.

The choice of one of these views is a focal point in policy making, and behavioral findings helped to choose what to do in that regard. A behavioral policy making shall consider how much the cognitive biases prevented people to achieve their goals (so, maximize their welfare under whichever of the three theories is chosen) and accordingly intervene when it is considered feasible, or they should at least try to minimize the exploitation by others of these biases. Behaviorally informed law makers should try to improve consumers choice-making whatever the causes of these misbehaviors are.
As previously mentioned, there are many potential biases that markets may use in order to take advantage of consumers, considered the "weak" part of these transactions. Governments should take measures to prevent this exploitation but only if the issues are higher than the benefits.

However, even more controversial is the topic of the so called "legal" (or "Libertarian") paternalism, an intervention that limits personal freedom and may touch many different areas of a person's life,[54] and as such have created many debates about this kind of approach by the legislator. These controversies sparked after the publication of "*Nudge*" by Richard Thaler and Cass Sustain in 2008. Here, the authors state the need to adopt public policies to "gently" nudge individuals through what is believed is best for them, according to the behavioral studies that showed the "misbehavior" that most people have.

Since the beginning of the interest by the European Union in the 2000s for behavioral laws, the main question was whether those European behavioral policies shifted their political rationale and how they are situated in a spectrum of liberal or neoliberal political philosophy and how those may be seen in a wider jurisdictional aspect of deontological and welfarist theories.

[54] That goes from legal incapacity of minors, driving safety requirements and rules, compulsory social security, and pension plans, as well as basic education. In the consumer field, some paternalism appears in some taxes of some unhealthy products, such as cigarettes or sugary drinks.

From a welfarist point of view, preventing certain types of behaviors that are due to cognitive biases is more acceptable, since it is believed that the limitations will cause less displeasure than the act itself which is forbidden or limited. From the deontological point of view, these kinds of laws are a bigger threat on people's autonomy, which, according to their view, should be the main focus, even if they break some "cognitive rules".[55] Having found that these biases may be modeled as a constant deviation may make it seem like a systematic intervention is possible and desirable, but this fact should not give regulators free actions into limiting people's freedom.
Nevertheless, anti-paternalistic theories and certain behavioral findings claim that individuals themselves know best when it comes to what would make their lives better (and the risk of mistake from regulation in interpreting this may be greater than any benefits they might have).[56]

On the most political side of this argument, it is worth looking at how the European laws on consumers we consider in this work suit the political compass, analyzing whether they are more into a classical liberal rationale or a neo-liberal one, which have been the primary doctrines of European policy making.

The most classical liberal conception of the markets conceives them in a *naturalistic* way, that they will auto-regulate by their own laws, and regulation is only accepted when there are "market failures", and thus the markets become a policy issue. This rationale foresees the least possible intervention in the markets, and since only their failure is considerable as a policy matter, in accordance with the liberal values, the government should intervene,[57] while without this evidence, the liberal would only require the government to protect private property and let the economic agent as free as possible.

---

[55] Cass R. Sunstein, "*Why Nudge? The politics of Libertarian paternalism*", 2014.
[56] This is the classical argument about liberalism that Stuart Mill had on his "*On Liberty*" of 1859.
[57] For instance, think of monopolies or other matters that have changed in perception according to the political view.

In more recent years,[58] the policy view has shifted from this "hard" position of total separation of economic laws and politics, and many market-based policies have been made, which are policies that view the markets as a tool for applying their willingness and, as such, they are often made by markets laws.[59] This is what can be called the neo-liberal approach.[60] European behavioral policies of paternalistic laws that intend to nudge the behavior of people through a more socially favorable outcome, may be seen as more liberal, thereby "regressing" from the neoliberal approach that was the normality in the modern days. Many libertarians have become worried about these market regulations since they go against their naturalistic laws and are therefore more in accordance with a liberal point of view regarding public intervention.[61] On the other hand, other critiques have moved away from these policies for being too neoliberal, since these approaches are too market-driven and are seen as an example of market constructivism, which tries to make every individual in society a fully rationale *Homo Oeconomicus*[62] causing many issues for the liberty of a democratic citizen.

In this context, European policies are non-clearly considerable in neither of these ways. If on one hand the behavioral laws have a paternalistic rationale that aims to improve total welfare, these will lead to a greater presence of the state within economic matters which does not fit with a liberal view of the state, even if the intentions may have been in that direction. On the other hand, these policies, which as we previously saw were market tested, somehow elevated the markets into the norm for policy. Using consumer market-agents and not the markets themselves as the tool of application of the policy may be another argument in

---

[58] From the end of 1990s onward.

[59] For instance, let's think about the privatization laws, that used the market competition rules to actuate their policies.

[60] Wendy Brown, "*Undoing the demos: neoliberalism's stealth revolution*." 2015-

[61] Will Leggett, "*The politics of behaviour change: Nudge, neoliberalism and the state*.", 2014.

[62] See *supra note.*

accordance with the neoliberal approach position.

Several studies[63] outlined the risk that this kind of reasoning may have in depoliticizing the legislative process into a mere technical procedure, which is only subjected to the market evidence and can therefore be considered non-controversial. Many studies, including the one disclosed previously which experimented the behavior of investors, seem to confirm these worries. The European Union seems to stick with a neoliberal approach for their behavioral policy making process where empirical market evidence allows a in depth limitation of personal freedom, and so it does not completely resemble the standard neoliberal position.

With this brief disclosure that hopefully helped to contextualize the matter of behavioral laws and economics better, let us now analyze an example of this kind of legislative action, the Key Information Documents.

[63]John McMahon "*Behavioral economics as neoliberalism: Producing and governing homo economicus*.", 2015.

Chapter 2 - The KID

As discussed in the previous chapter, the European Legislator took into consideration, at the time of revision[1] of the original MiFID[2] in 2011, a behavioral study on retail investors[3] which outlined the need for more incisive regulations regarding the requirements of the Information Documents. Based on these studies and other research in consumer behavior, one year later the regulator began the legislative path that eventually led to the regulation on KID for PRIIPs.

2.1 - The Environment

In 2009, a first regulation on the "Key Investor Information" (KII)[4] regime made progress in the disclosure for investors on a category of product: the UCITS, (Undertakings Collective Investment in Transferable Securities),[5] whose main products include Mutual Funds and ETFs (Exchange Traded Funds). These are the main instruments used by investors to enter financial markets, either by means of an active managed fund or an index one, which have the aim of giving a constant return over the years. This is obtained by the diversification between industries or as an effect of the index tracking process, without the need for the

---

[1] The already mentioned: COMMISSION STAFF WORKING PAPER IMPACT ASSESSMENT, Accompanying the document Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Markets in financial instruments, 2011.

[2] Directive 2004/39/EC of the European Parliament and of the Council of 21 April 2004 "on markets in financial instruments".

[3] Again, the already mentioned: Decision Technology Ltd, Nick Charter, Steffen Huck, Roman Inderst *"Consumer Decision-Making in Retail Investment Services: A Behavioural Economics Perspective*", 2010.

[4] Commission Regulation (EU) No 583/2010 of 1 July 2010 implementing Directive 2009/65/EC.

[5] This kind of product has been regulated since 1985 with the "COUNCIL DIRECTIVE of 20 December 1985 on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities (UCITS)" the so called UCITS I, that in the years has been reviewed until the latest regulation so far, the "Directive 2014/91/EU", UCITS V that entered into force in 2016.

consumer to pick different shares in the market but by simply allocating funds into one of these products.[6]

Although this regulation was a breakthrough at the time, since it first aimed to standardize the information documents that a retail investor gets when entering in contact with an intermediary for a transaction, it had some limitations due to it restrict field of action which only addressed small categories of complex products. Indeed, shortly after the implementation of the first European KII law, the regulator recognized the need for an Information disclosure on a wider range of instruments. Furthermore, in the MiFID 2[7] impact assessment[8] they highlighted the need for the reinforcement of the information requirements even for other complex products, which can be clearly seen in the cost-benefits analysis shown in Figure 3, and thus started the preparatory work for the Key Information Document (KID) for the Packaged Retail and Insurance-based Investment Products (PRIIPs).[9]

8.6 Reinforce information obligations when providing investment services in complex products and strengthen periodic reporting obligations for different categories of products, including when eligible counterparties are involved	(--)compliance costs for investment firms (++) benefits for clients receiving more precise and timely information about products and to some extent to regulators	(++) increased awareness of different categories of clients about the characteristics and the valuation of products traded with their investment firms (++) overall improvement in the quality of information on products (-) reduction in opportunities for investors if costs passed on to them	(++) compliance costs for investment firms compensated by better knowledge of products by firms and clients and improved relationship with clients

Figure 3: MiFID 2 impact assessment cost - benefit analysis of improvement in Key information document.

[6] For a comprehensive analysis of the differences between these kinds of instruments; see, for instance: Bodie, Kane and Markus (2014), *Investments*, McGraw-Hill, Chapter 27.

[7] DIRECTIVE 2014/65/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 15 May 2014 on markets in financial instruments.

[8] See *supra note* 1.

[9] COMMISSION STAFF WORKING DOCUMENT IMPACT ASSESSMENT Accompanying the document: Proposal for a Regulation of the European Parliament and of the Council on key information documents for investment products 3.7.2012.

PRIIPs are briefly defined in the preparatory work for the KID regulation as products sold to retail consumers that carry a risk of losing part of the investment.[10] In 2009, they represented about 42%[11] of the structured product markets and as such are considered worthy of having proper regulation.
The retail market for this kind of investment product was estimated by EFAMA[12] to be worth around 9 trillion Euros,[13] of which 3 trillion were directly contributed by retail consumers (i.e., without any intermediation by financial advisors). These figures clearly show the magnitude of the issues that these products, whether regulated or not, may have in regard of capital misallocation between retail consumers, where not properly advised.

Which drivers could lead to misallocation and misunderstanding without regulation?
Three main problem-drivers have been noted in the impact assessment that required an additional regulation for the PRIIPs.[14] Firstly, there is the proliferation of different investment products, which leads to confusion since they are defined according to different legal forms and structures, instead of the actual financial rationale behind them (which therefore may make products which are similar in application seem different), an issue that is even further intensified by the un-leveled legislative actions on PRRIPs between the European countries (second driver). These issues generate strong informative asymmetries between retail consumers and industries and thus the need for a standardization effort that will help consumers to better understand the products they are presented to and is even more relevant when accounting for cognitive issues in retail investors. The behavioral matters are nonetheless directly addressed as the third problem-driver by the Commission staff, that has directly and clearly taken into account the retail behavioral study from Decision Technology as a support work

[10] See *supra note* 9, page 12, for a more precise definition check the paragraph 2.2.1 of this work.
[11] Where the remaining 58% where made by UCITS products.
[12] EFAMA Investment Fund Industry Fact Sheet, May 2010.
[13] Including UCITSs; as the Commission Staff pointed out, these figures represent roughly 50% of European GDP.
[14] See *supra note* 9, page 13.

alongside other consumer tests in the field,[15] suggesting the greater interest in the Behavioral matters from the regulator, which, as we will see, will address many of these findings in the regard of cognitive biases when making this piece of law.

In addition to these issues, in 2011, when this new regulation was being considered, the European financial markets were in the most acute phase of the financial crisis that started at the end of the 2010s in the United States and spread across the world. This caused the consumers' confidence in financial markets to be particularly precarious which meant that there was an even stronger need for new regulations in the field to level out these issues.

Indeed, in this period, many other Laws were put forward in order to try and increase confidence in financial markets, including the BRRD[16] regulation on bank recovery and resolution plans, and the creation of many European Agencies (ESAs) in the financial field, namely the European Banking Authority (EBA),[17] the European insurance and Occupational pension Authority (EIOPA)[18] and the European Securities and Markets Authorities (ESMA)[19] which formed the European System of Financial Supervisors that had the aim of giving another layer of supervisory power on top of the national agencies.

---

[15] See *supra note* 9, Page 7.

[16] Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014.

[17] Regulation (EU) No 1093/2010 of the European Parliament and of the Council of 24 November 2010 establishing a European Supervisory Authority (European Banking Authority).

[18] Regulation (EU) No 1094/2010 of the European Parliament and of the Council of 24 November 2010 establishing a European Supervisory Authority (European Insurance and Occupational Pensions Authority), amending Decision No 716/2009/EC and repealing Commission Decision 2009/79/EC.

[19] Regulation (EU) No 1095/2010 of the European Parliament and of the Council of 24 November 2010 establishing a European Supervisory Authority (European Securities and Markets Authority), amending Decision No 716/2009/EC and repealing Commission Decision 2009/77/EC.

2.1.1 - Motivation of PRIIPs regulation

A simple question may naturally appear: Why can't we simply apply the pre-existing regulation for UCITS to these other kinds of products?

In the impact assessment work,[20] the Commission Staff pointed out that in some surveys that were made at the time analyzing the need for PRIIP initiative,[21] the preexisting disclosure requirements were difficult to understand for the average consumers, since the concepts in financial investments were complex[22] to understand sometimes even for financially educated individuals, especially in the case of this category of complexly structured products. Their presentation in an excessively static and opaque jargon further reduced the ease of understanding these instruments, that may have complexity- and ambiguity-adverse individuals completely skip or ignore these informative documents wherever the language is not suitable for their needs. This may cause a dangerous loophole of non-informed investing that will exacerbate the issue in the complex markets, that has to be "regulated" giving investors the information they need.
This information is disclosed in excessively long documents which cause information overload.[23] Unnecessarily long documents, as reported in the impact assessment analyzing some responder on a KII disclosure requirements survey, present investors with "documents [that] are too long, so we just can't be bothered to read them from the beginning to the end".[24]

These issues are even more intensified by the lack of a comprehensive approach

---

[20] See s*upra note* 9.
[21] See *supra note* 9, Annex I-8.
[22] As we have seen in the analysis of the behavioral study in the previous chapter from Decision Technology how this impact the capital allocation in retail investors, that struggle with complexity and often misunderstand the basic financial concepts, alongside.
[23] A final report by the Better Regulation Executive and National Consumer Council on maximizing the positive impact of regulated information for consumers and market, "*Warning: Too much information can harm*", 2007.
[24] See s*upra note* 9, Page 18.

to the documents, that was something like a raw compliance to the law, with a caveat of legal dictions that may seem dull or confusing. The lack of standard compliance methods between the intermediaries can even give misleading information to consumers, since even if these were correct, they were presented weighting the most positive outcome more and only reporting the “negative" points in small fonts and not highlighting them clearly for the retail consumers.[25] This is a huge issue that can take advantage of the previously disclosed Confirmation Bias[26] (and all the other cognitive issues related to egocentrism), where the investors will tend to focus solely on the positive facts, which can be even more intensified by the way the documents are presented.

These misperception issues are even more relevant because investors have a poor conception of risk and of probability in general,[27] which may be increasingly exacerbated by these issues, and thus require a further regulation on disclosure requirement on that matter.

A CONSOB study on risk perception and financial disclosure[28] that tested different demographic categories, in awareness of their potential behavioral biases, found out the relevance in risk perception of how things are disclosed (Framing Effect), and how this may affect investors, even the more educated ones. However, on this point, some studies highlighted that the KII regulation was consistent when addressing this behavioral matter,[29] and that approach for risk disclosure, with a synthetic risk index equal for every kind of product, was indeed kept also on the new KID. Instead, an issue was found with the disclosure of risk requirements at the time which have been highlighted again by the Commission Staff, as not presenting risks with clear comparability between

[25] See *Supra note* 9 Page 18-19.

[26] For references see paragraph 1.2.4 of this work.

[27] As we saw in the Prospect Theory Section of chapter 1, paragraph 1.2.2.

[28] “Financial disclosure, risk perception and other issue: CONSOB, *“Quaderni di finanza, Financial Disclosure, Risk perception and investment choices Evidence from a consumer testing exercise”* M. Gentile, N. Linciano, C. Lucarelli, P. Soccorso, 2015.

[29] Diacon S. and J. Hasseldine, *“Framing effects and risk perception: the effect of prior performance presentation format on investment fund choice*", CRIS Discussion Paper Series, 2005.

products, in respect of a lack of evidence on the risk prospects either on counter-party risk or the most basic liquidity one that were missing. Even if the pre-existing risk index was found to have improved the confidence of investors and the comparability capacity even if it was recognized that there was room for a better standardization process.[30]

2.2 - The KID

Having disclosed these issues, the declared objectives were, aside from the clear improvement in the consistency of the regulatory context and the required timing of delivery of these documents, to improve comparability and comprehensibility of the disclosure according to the behavioral perspective by the means of standardization between the disclosure of different products.[31]

Let's now see the actual regulation of the KID, the behavioral issue addressed by analyzing an exemplary one, and the issues the industry has addressed before and after the adoption of these kinds of instruments.

2.2.1 - General Points and definition

As per Regulation No 1286/2014 of the European Parliament and of the council, KIDs are a pre contractual piece of information that shall be "accurate, fair, clear and not misleading" and shall be a stand-alone document consistent with the relevant information of the underlying PRIIP contract for the retail investors.[32] The regulation came into force the 1st of January 2018.

---

[30] See *supra note* 9 page 20, as already evidenced in Decision Technology research; more on that later.

[31] PRIIP impact assessment page 27.

[32] art. 6 paragraph 1 and 2, Regulation No 1286/2014.

This first point requires two definitions to be explained in order to understand the exact point of application, namely what a PRIIP exactly is. PRIIP stands for "Packaged Retail and Insurance-based Investment Products", and can be considered, according to the European Regulator, as a Retail Investor.
There is no direct or clear definition of PRIIP since it needs to be broad in order to include any new class of products that may appear. Therefore, we can extrapolate from different legislative and industry sources which kind of products are affected by this regulation. The Impact assessment for the KID regulation[33] defined PRIIPs as risk-carrying investment products that promise returns on the allocated capital, manufactured targeting retail investors.
Certain industry analyses[34] have identified them as: Mutual funds (including UCITS[35]), Insurance-based investment products (Unit-linked, with profit policies, etc.), Structured products and deposits, Convertible bonds, and Derivatives. They are essentially all the *non-vanilla* finance products, which, unlike simple products such as common shares, non-convertible Bonds and Pension funds, have a higher degree of complexity and risk in the way they are structured.

Retail investors are more clearly defined in the MiFID 2, which gives the indirect definition of retail investor as a non-professional one.[36] Professional investors are credit institutions, investment firms or other regulated financial institutions, which have at least two of these characteristics: a total balance sheet of at least 20.000.000 Euro; a net turnover of at least 40.000.000 Euro; and its own funds of at least 2.000.000 Euro. Retail investors are thus either a natural or legal person who does not satisfy the above-mentioned capital requirements or is

[33] See, again, *supra note* 10 for reference.
[34] As stated here: https://www.pwc.com/it/it/publications/assets/docs/priips-regulation-and-the-new-jid.pdf
[35] UCITS, despite having a proper regulation for their information documents (the previously disclosed KII), is required to follow this new regulation as well, even if in a successive period (originally 31 December 2019, moved to 31 December 2021) than other PRIIPs, creating some confusion in the industry practice and the risk of overlapping regulations for this kind of instruments.
[36] This point and the successive disclosure are presented in Annex II, Section I of the MiFID II law, for a precise reference on that see *supra note* 7.

otherwise excluded from these categories. A by-default retail investor can require to be treated as a professional one if they have carried out a significant amount of transactions in the previous year in the relevant markets,[37] if their allocated capital into brokerage account exceeds EUR 500.000 including both cash deposits and securities or if they have had a professional position for at least one year in the financial sector.

When retail investors encounter a complex financial instrument, they must receive the KID from the intermediary in "good time",[38] i.e., before the investment process takes place, and it should be free of charges.[39]
The timing of receiving information affects the decision-making processes, since, as mentioned when talking about cognitive biases such as the sunk-cost effect and the confirmation bias,[40] these should be given in an early stage before the consumer makes their decision. Otherwise, this will lead them to ignore the disclosure if presented at a later stage, either by considering it as a cost they are not willing to face anymore (since they have already decided) or will only look for the information that they believe will confirm their choice, making all the KID-disclosure process meaningless.

The KID shall be a short document written in a concise manner of maximum three A4-pages, presented in a way that is clear to read, focusing on the key information consumers need, and clearly expressed in a way that facilitates the understanding of information in a language that is clear and comprehensible.[41]
The standardization needs, that as we have seen, are one of the most important points delineated in the behavioral studies, are highly improved by the requirement for every KID to have the same length, which will surely help the

[37] Namely 10 per every quarter in the previous year.
[38] In the "COMMISSION DELEGATED REGULATION (EU) 2017/653", Article 17, good time is considered to be "Sufficiently early as to allow retail investors to consider the document".
[39] Article 13 and 14 Regulation No 1286/2014.
[40] For reference, see the previous chapter, paragraph 1.2.2. - 1.2.3.
[41] Article 6 Paragraph 4 Regulation No 1286/2014.

comparability between different products. The comprehensibility of the document, which, as we saw, was one of the main points highlighted in the Impact assessment of the commission as the main problem for retail investors, is assessed with the request of limited use of complicated jargon and complex financial words that will help the most illiterate traders to understand what kind of product they are facing. The KID shall include the same information for every PRIIP and, as such, will help investors even more to compare different products, with the same layout and information requirements for each one. Nevertheless, the KID should be translated into the official language of the national state where the product is sold.[42]

This information shall be reviewed at least every 12 months, or in a shorter period of time whenever there is the need to address any significant changes that impact the specific product and would affect the accuracy and fairness of the KID. The delegated regulation requires the reviewal of the KID prior to the 12 months if the Risk Indicator has some significant impact that will lead to a different risk class, or the prospected annualized return has changed by more than 5 percentage points during the period.[43]

Having disclosed the general provision for the KID, let us now analyze its content by analyzing an actual document that an investor would encounter in order to see what has been done to try to fix their biases.

2.2.2 - Example of a KID

Let us now analyze an exemplary Key Information Document, for ENEL's (Milan) Call Option on its share, as downloaded on the 4th of May from the online broker “Degiro”, an online Dutch trading platform that operates in most European countries. The KID is in English language since it was one of the two options we

[42] Article 7 Regulation No 1268/2014.
[43] COMMISSION DELEGATED REGULATION (EU) 2017/653 article 15-16.

got from the broker and is intended to disclose the product for a Long position on it. A Long position is the act of buying the Option and thus being entitled to the right to buy the underlying shares at the fixed price at the time of expiration. A Short position, for comparison, is the act of selling ("Writing") the option to other investors in order to gain the premium, and since it is the opposite position of the "Long" one, it obliges the seller to sell the underlying stocks at the fixed price and on the date of expiration, in the eventuality that the holder exercises their rights.[44]

The information required in the actual making of the KID can be found in Article 8 of the PRIIPs KID regulation[45] and in the Commission Delegated Regulation 2017/653 where there is supplementing information on the compliance requirements.

KEY INFORMATION DOCUMENT

Purpose: This document ("Key Information Document" or "KID") provides you with key information about the investment Product described in the following section. It is not marketing material. This information is required by Law to help you understand the nature, risks, costs, potential gains and losses of this Product and to help you compare it with other products.

Product: 'Call options on shares': This Product can be traded on several Underlyings, with different Expiries and Strikes, (a) with American style, physically settled, (b) with European style, physically settled, (c) with European style, cash settled, as described at: www.borsaitaliana.it/derivati/derivati/derivati.htm.

PRIIP manufacturer:

- name: Borsa Italiana S.p.A. ('Borsa Italiana')
- website: www.borsaitaliana.it
- Competent Authority: Commissione Nazionale per le Società e la Borsa (CONSOB)

This Key Information Document was created on: 29 April 2021.

You are about to purchase a Product that is not simple and may be difficult to understand.

Figure 4, General Information section of KID on ENEL Call Options on shares.

In the first section of the KID, investors are presented with the purpose of this document, assessing that is not marketing material and the reason why they are receiving the document: it can help them understand the nature, risks, costs,

[44] John C. Hull, "*Options, Futures and Other Derivatives*", 9th Edition, 2015, Chapter 10.

[45] Regulation No 1268/2014.

and potential scenarios of the product they are encountering alongside helping them with comparability with other instruments.

Then there is some information about the actual product, even if generic, disclosing the product as an Option on share that may take different natures regarding its mechanics, which will be further addressed in the next session. It is interesting to note that the web link provided will take the investor to a web page in Italian,[46] where they will be presented with different derivative products and information on their prices for different chains and it may not be clear how this will improve the information on this specific product for the consumer.
The other information provided is the name of the manufacturer, which is also the entity responsible for preparing the KID, while the seller must give the document to the investor, alongside their website.[47] Further information provided includes the name of the competent (national) authority, which in this case is CONSOB, the Italian Market authority, and when the document was last updated.

The regulation also requires the insertion, where feasible, of the phrase: 'You are about to purchase a product that is not simple and may be difficult to understand.' which seems to be the first "behaviorally" oriented kind of requirement since it alerts the consumer of the complexity of the product they are encountering. Furthermore, it potentially addresses the Overconfidence issue, and the other related egocentrism bias,[48] which could induce the investor to think that they are fully aware of the issue they are going through, even if this is not the case. The fact that this disclaimer is presented at the beginning of the document is even more interesting since it is surely trying to address the "Primacy Effect" bias[49] which affects the investor's perception of the problems

[46] https://www.borsaitaliana.it/derivati/derivati/derivati.htm
[47] Even if it seems like it is in compliance with the regulation, it is worth noting that Regulation 2017/653 Article 1, Letter C, also requires that, alongside the website, a telephone number should also be present.
[48] For more details, check paragraph 1.2.3 of this work.
[49] As analyzed in paragraph 1.2.4 of this work.

according to the way it is disclosed due to the fact that people tend to give more importance to the first piece of information they receive. Pointing the risk out at the beginning (and in this specific case, highlighting it with a bright color) could bring more awareness to this point, alerting the consumer that they should not undertake the risk of misunderstanding the relative PRIIP.

The second section entitled "What is this product?" gives the retail investors a more in-depth definition of the product they are buying.

What is this Product?

Type: This Product is a financial instrument of the following category: 'options on securities' (Annex I section C of Directive 2014/65/EU of the European Parliament and Council, dated 15.5.2014, comma 4).

Objectives: A call option with American style is a derivative contract that gives the buyer the right, but not the obligation, to buy a pre-determined quantity of a financial or real asset (the Underlying asset) at a pre-determined price (the Strike price), till a pre-determined future date (the Expiry date). In the case of European style options, the right can be exercised only at the Expiry date. This Product creates a leveraged exposure to the changes of the Underlying value (shares). In case opened positions are maintained till the Expiry date, for each owned standard contract traded on the IDEM market ('Standard Contract' or 'Lot'), the buyer's payoff will be equal to the product of: the size of the Standard Contract ('Size') and the higher between zero and the difference between (a) the 'Settlement Price', as defined below, and (b) the Strike price, minus the price paid by the buyer of the option to open the position ('Premium') and the total costs paid:

Size x [max (Settlement Price - Strike , 0)] - Premium - Total costs

while the seller's payoff, excluding the total costs paid, will be symmetrical to the buyer's payoff and equal to:

Premium - Size x [max (Settlement Price - Strike , 0)] - Total costs

For cash settled contracts, the monetary value of the profit/loss will be attributed to the buyer and the seller. For contracts with physical delivery, the buyer of the contract must receive the Underlying, and the seller must deliver it, according to the Rules of the trading venue and of its central counterparty.

The Size of the Standard Contract is measured in number of underlying shares (e.g. 100, 200, 500 shares) and depends on the Underlying. The Settlement Price represents the Underlying value at the Expiry date and is calculated according to rules pre-defined by Borsa Italiana. The relationship between the value of this Product and the Underlying value is non linear. Before the Expiry date, the value of the Product depends on the value of the Underlying, expectations on Underlying's volatility, dividends and interest rates, remaining time to Expiry and Strike price. Positions on this Product can be opened and closed when the IDEM market is open for trading and during the trading hours for the Product. This Product does not have a minimum holding period, nor Borsa Italiana recommend a specific holding period. Borsa Italiana can determine the early termination and cash settlement of open positions in the event that the Underlying share is subject to: i) reduction of the free float following a public tender offer, that does not ensure to maintain an orderly trading activity; ii) revocation of listing or exclusion from trading. This procedure may also be necessary in case of no regular price formation or absence of trading for a long period of time. Please refer to the Borsa Italiana Rules and associated Instructions for further information.

Intended retail investors: This product is not designed to be marketed to a specific type of investor and can be used to hedge portfolio risks as well as for directional trading strategies. A retail investor should become familiar with the characteristics of this product to make an informed decision on whether or not this product is fit for its investment needs. If in doubt, a retail investor should contact its broker or investment adviser to obtain investment advice.

Figure 5, "What is this product?" Section of the KID on ENEL Call Options on shares.

Here we can find the legal definition of the PRIIP, in this case an "option on securities" according to the MiFID 2 directive, followed by a specific disclosure on the objective of this kind of product. The objective section should be

"summarized in a brief, clear and easily understandable manner"[50] and disclose to the investor the general mechanics and payoff structure of a Call Option (for both Long and Short positions) alongside some details regarding the settlement process.[51] Then, there is a general disclosure on how the return is determined, and, in this case of a Call option, there is a brief explanation regarding how the pricing works, but non-explicitly addressing the so called "Greeks" representing the variables that determine the options price in the Black and Scholes model.[52] The investor is then presented with the suggested holding period, alongside the intended category of investors, which, in this case, states that options are intended for general purpose of hedging or to have some directional strategies without a target clientele.

Even if this kind of disclosure seems totally in compliance with the requirements of the Regulation, these may not give the investors the information on the product that they may need since they appear to be rather generic, and they do not state if the specific Options are European or American style [53] or the actual underlying size (that will impact the price of the option) for the contract the investors are interested in.

Recalling that the KID regulation has the scope of giving a general layout for every PRIIP presented this general disclosure by product class may make sense. However, it is not clear how having the same prospect for every Options' type may increase the comparability capacity for the retail investors between different kinds of products. This section may surely appear more meaningful when

---

[50] Regulation 2017/653 Article 2, paragraph 2.

[51] Even if according to the recent investors' behavior on Options, settlement is not usually an issue, since they tend to speculate on their actual price and sale before expiration (and so with the need for a settlement), as it is clear reading this article of the infamous "Wall Street Bet" forum:
https://www.reddit.com/r/wallstreetbets/wiki/options

[52] See *supra note* 43, chapter 19, on the functioning of the Greeks letter as indicators for pricing of Options and Chapter 15 on the Black and Scholes Model.

[53] *Supra note* 43, Chapter 10, page 213-215 for an in-depth explanation on the various kind of options.

comparing other kinds of PRIIPs between their class, such as different funds, where the time of holding and the general objective may differ between them. Nevertheless, it is worth noting that in this exemplary process of requiring information for a Call option, we have not received any further specification on the actual product (except the expiration date and strike price, which are indeed necessary to discriminate between the options in an option chain in the intermediary website) and thus, since the KID should provide all further information to the investor, a more specific approach may be relevant in order to not evenly increase the risk of misunderstanding it or not be aware of its exact structure, increasing the difficulties in getting all the information.

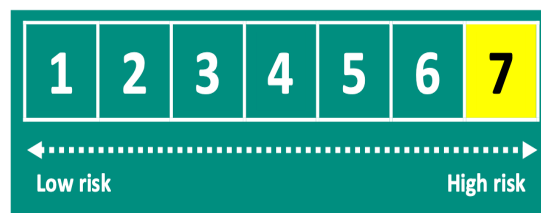
On the behavioral side, this section appears to be more of an "educational" prospect, as it tries to give information on the product in order to align the potential customers to what they are going to buy with an as simple language as possible. In some other kinds of PRIIPs, this section will surely help with the standardization effort and comparability between products.

More issues regarding the behavioral side will appear on the third section of the KID, the one relative to the risk disclosure.

What are the risks and what could I get in return?

Summary risk indicator (SRI): The SRI is a guide to the level of risk of this product compared to other products. It shows how likely it is that the product will lose money because of movements in the markets. We have classified this product as 7 out of 7, which is the highest risk class.

The SRI assumes you keep the product till the Expiry date. The actual risk can vary significantly if you cash in at an early stage and you may get back less. You may not be able to sell your product easily or you may have to sell at a price that significantly impacts how much you get back.



This Product is traded on the IDEM market with the presence of market makers, that are committed to provide liquidity on certain Expiries and Strikes, for pre-determined minimum quantities and maximum spreads during the trading day. Market makers' obligations are described in the 'Instructions to the Rules of the markets organised and managed by Borsa Italiana S.p.A.'.

Figure 6: "What are the risks and what could I get in return" Pt.1 section of the KID on ENEL call options on shares.

The first part of the section relative to risk includes a "Summary Risk Indicator" which is a 1-to-7-point(s) index that will clearly address the riskiness of the product they are going through.

The delegated regulation[54] requires this index to be made by addressing the potential "VEV", (Value-At-Risk[55] Equivalent Volatility) of the PRIIP, which indicates the exposure to volatility to the market fluctuation of the instrument's amount value at risk. The first levels stand for a natural level of market movement,[56] while level 7 represents the highest risk, with a VEV equal to or higher than 80%. This is coherent with the high riskiness of options, which, being highly leveraged on their underlying, experience a high degree of fluctuation in price on a daily basis, that may see investors lose all their money invested if they keep the product until expiration. *Borsa Italiana* also points out that some liquidity risk may happen when holding options, which can have the investors selling their options at a low price that impacts the return,[57] even if the reference market (IDEM[58]) will have the obligation to guarantee liquidity on certain expirations and strikes.

This kind of standardized risk disclosure, in addition to helping with the required comparability need, will show even the most illiterate retail investor a clear and easy identifiable risk index that will present the relevant information without having to deal with percentages and the annexed statistical matters,[59] and without the need of explaining complex financial concepts like the VaR which

---

[54] A detailed disclosure can be found in Annex II on how to compute the SRI, alongside all the technical standards that the manufacturers have to follow when preparing the KID.

[55] Value-At-Risk is a standard risk index that will show the maximum loss possible (in a determined confidence interval), that takes into account the volatility of the risk factor, the size of the position and the probability distribution. For reference, see: Jòn Danìelsson, Financial Risk Forecasting, 2011, chapter 4, paragraph 3.

[56] With VEV that goes from 0,5% to 30% for the first 5 Levels, and from 30 to 80% for level 6.

[57] Liquidity issues will happen with the most "out of the money" options which, being improbable to reach the strike price at expiration, lose most of their value.

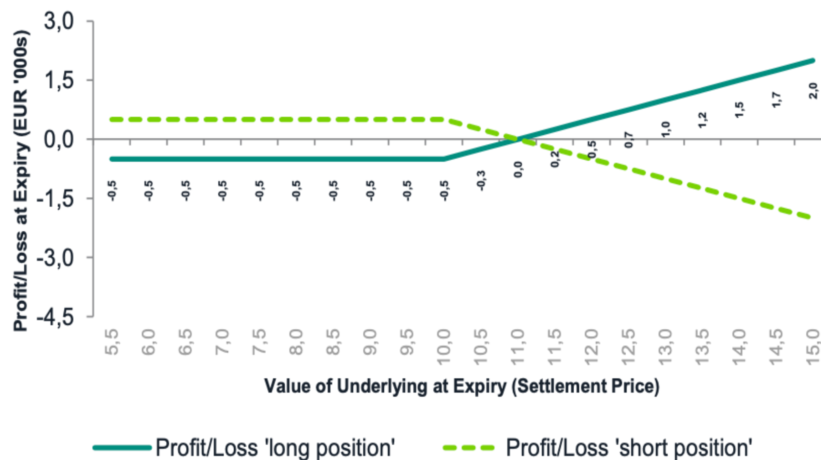
[58] Italian Derivatives Market.

[59] That, as we saw are a huge driver of misunderstanding for retail investors. See again the "Decision Technology" study on consumers behavior and Paragraph 1.2.1.

may be difficult to understand without a proper financial education.

Clearness and conciseness of this risk disclosure will again address other cognitive biases that consumers may have, such as the already mentioned Information Overload and Complexity Aversion which can induce consumers to refrain from making decisions or ignore the riskiness whenever it would have been presented with the actual computation of the index.

Performance scenarios: The following performance scenario is based on a position of 1 Standard Contract of the Product, under the following assumptions: (i) the position was opened by paying a Premium equal to EUR 1,00 for each Underlying unit, (ii) the Size of the contract is equal to 500 shares and (iii) the Strike Price is equal to EUR 10. It is possible to open the position by paying a Premium that is different from these assumptions, depending on market conditions and on the specific characteristics of the traded contract.



This graph illustrates how your investment could perform at the Expiry date. You can compare it with the pay-off graphs of other derivatives. The graph presented gives a range of possible outcomes at the Expiry date and is not an exact indication of what you might get back. What you get will vary depending on the value of the Underlying at the Expiry date. For each value of the Underlying at the Expiry date, the graph shows what the profit or loss of the Product would be. The horizontal axis shows the various possible values of the Underlying at the Expiry date. The vertical axis shows the profit or loss.

Buying this Product (opening a long position) holds that you think the Underlying price will be, at Expiry, above: (Strike) + (Premium paid, for a unit of Underlying) + (total costs paid, for a unit of Underlying).
The buyer of this Product can have a maximum loss equal to: (Premium paid) + (total costs paid).

Selling this Product (opening a short position) holds that you think the Underlying price will be, at Expiry, below: (Strike) + (Premium received, for a unit of Underlying) - (total costs paid, for a unit of Underlying).
The seller of this Product can have an unlimited loss.

The graph includes the costs that are necessary to trade and clear the Product, and that are charged by Borsa Italiana and its central counterparty ('Cassa di Compensazione e Garanzia S.p.A.' or 'CC&G') to their member firms (see section 'What are the costs?'). It does not include other costs that are not directly charged by Borsa Italiana and CC&G, including the costs that you pay to your advisor or distributor. The figures do not take into account your personal tax situation, which may also affect how much you get back.

What happens if Borsa Italiana is unable to pay out? Borsa Italiana is not a counterparty to any transaction executed on the IDEM market and is not liable for the financial performance of either counterparty. Transactions executed on the IDEM market are guaranteed by a central counterparty (CC&G). The guarantee systems managed by CC&G are organised and managed according to existing laws and rules, and have the goal to eliminate counterparty risks, protecting buyers and sellers in case of default of the owner of positions opened by trading on the IDEM market. Detailed information on the guarantee systems organised and managed by CC&G, and on the risk management procedures triggered in case of default of one or more participants to the guarantee systems, can be requested directly to your broker or to CC&G (www.euronext.com/en/post-trade/ccg/contact-us).

Figure 7: "What are the risks and what could I get in return" Pt.2 section of the KID on ENEL call options on shares.

The performance scenario (presented in Figure 7) accompanies the risk disclosure and generally presents the investor with a computation of four different scenarios of stress, unfavorable, moderate, and favorable potential outcomes.

These scenarios show the possible performance in different time periods regarding the life or recommended holding period for the PRIIP, including different potential performances of the PRIIPs and what the investor could gain by holding it for diverse periods according to the different ways of computing the risk they may face.[60] This is a step forward from the previous KII requirements, which only required the presentation of a "Past performance" Disclosure to the investors. This was dangerous since past performances are not indicative of future performances, and it would have triggered many cognitive biases such as Overconfidence, in the case where the past data is favorable in the mind of the investor, or otherwise they would induce misleading sentiment that the product is riskier than it actually is due to several bad years, triggering loss aversion.

Computing the potential future outcomes in a standardized fashion will reduce ambiguity aversion and improve comparability between products, since these scenarios will only present the potential results that the PRIIP may have (even if these scenarios are, of course, computed according to the past data). Furthermore, it shows the most relevant kind of information to the investors, so that it shows them a potential future outcome that is as accurate as possible, without the need of computing the potential performance (with required skills that will surely be out of reach for most of the retail consumers). This will lead to a better understanding of the risk they may face according to market fluctuations

---

[60] For a detailed disclosure on how these scenarios are computed, see COMMISSION DELEGATED REGULATION (EU) 2017/653, Annex IV.

and the differences with the time of holding,[61] limiting the abstraction requirement of visualizing them.

Giving the intrinsic nature of Options and other derivatives of having a short life and with usually little historical data which is not meaningful for the computation of future scenarios, the Delegated regulation[62] required this kind of PRIIPs to have a “Pay-Off Structure graph” instead of the performance scenario.[63]

This is basically a graphical transposition of the payoff structure already enunciated in the second section of the KID, with a “standard” presentation of the Options Payoff for both a long and short position, assuming the investors are holding it until the expiration date. The graph is further explained by comments which clarify the fact that the returns are computed considering the costs the derivatives carry on during their life (that will be accurately disclosed in the next session of the document).
It is worth stressing that the standard graph could be misleading for retail investors, since many of them would not probably carry their option positions until expiration, but indeed they will try to take the gains on the actual price, which, as disclosed in the second section of the KID, follows a nonlinear relationship with the underlying price. Therefore, it may be more significant to show the consumers this kind of price behavior instead of the standard “text-book” process for computing payoffs in order to visualize the actual mechanics of these kind of products.

The section then ends with the required disclosure of what would happen if the manufacturer were not able to pay out, stating the fact that a central guaranteed

[61] This point is very significant for UCITS and other PRIIPs, since holding them for a long period of time will quite surely lead them to have a positive outcome, as is the case of Index-Fund.
[62] Article 3, Paragraph 5.
[63] That indeed is required for all the other PRIIPs, and it makes sense since a long-living Fund or other kind of PRIIP will have certainly more past (meaningful) data, and generally a longer holding period, that requires performance scenarios.

counterpart exists,[64] which will guarantee the position opened on the referent market (IDEM) in case of default of the manufacturer. This point is significant because, recalling the situations under which the law was conceived,[65] it aimed to improve consumers' confidence in the financial markets after the default or other financial trouble of some financial intermediaries at the time of writing the law.

What are the costs?

Assumptions: The costs described below refer to a position of EUR 10.000 of the Underlying (the Underlying Investment) corresponding, for a contract Size equal to 500 shares and an Underlying value equal to EUR 10, to 2 Standard Contracts. In addition, described costs refer to a derivative contract with remaining time to Expiry of 1 year. Costs will vary depending on the assumptions used and on the remaining time to Expiry of the contract. The number of Standard Contracts that correspond to an Underlying Investment of EUR 10.000 can be calculated as follows:

EUR 10.000 / (Underlying value x Size)

The assumed return is equal to 3% of the value of the Underlying Investment (EUR 300, before costs).

Presentation of costs: The Reduction in Yield ('RIY') shows what impact the total costs you pay will have on the investment return you might get. The total costs take into account one-off costs to open and close your position, ongoing costs and incidental costs. The amount shown here is the total cost for the Product, if the position is held open till the Expiry date. There are no penalties for an early exit from the position. The data are estimates and may change in the future.

Costs over time: The costs described below refer to the fees that Borsa Italiana and CC&G apply to their members, so respectively trading firms that are members of the IDEM market, and clearing firms that are members of CC&G. The person selling you or advising you about this Product may charge you other costs. These costs are not under the control of Borsa Italiana. This person will provide you with information about these costs and show you the impact that all costs will have on your investment over time.

Position with Underlying Investment of EUR 10.000	If you cash in at Expiry
Total costs	EUR 1,02
Reduction in Yield (RIY) for a derivative contract with remaining time to expiry of 1 year	0,34%

Composition of costs: The table below shows: (i) the impact of the different types of costs on the investment return you might get at the Expiry and (ii) what the different cost categories mean.

This table shows the impact on return for a derivative contract with remaining time to expiry of 1 year			
One-off costs	Entry costs	0,24%	**Indicates the impact of the costs to open a position, over the assumed return equal to a 3% increase of the value of the Underlying Investment (EUR 300).** Entry costs include trading fees charged by Borsa Italiana to the member firms of the IDEM market and clearing fees charged by CC&G to its member firms when a new position is opened. They do not include settlement fees, that cannot be linked to an individual transaction executed on the IDEM market.
	Exit costs	0,1%	**Indicates the impact of the costs of exiting your investment at the Expiry date, over the assumed return equal to a 3% increase of the value of the Underlying Investment (EUR 300).** Exit costs include clearing fees charged by CC&G to its member firms when a position is closed at the Expiry date. They do not include settlement fees, that cannot be linked to an individual transaction executed on the IDEM market. 'Exit costs' are different in case positions are closed before the Expiry date. In case the position is closed by executing an opposite transaction, 'Exit costs' are equal to 'Entry costs'. In case positions are closed through early exercise (possible for American-style options only), exit costs are equal to the related clearing fees required by CC&G.
Ongoing costs	Hedging costs (Normal market conditions)	N/A	**There are no costs to keep the position open till the Expiry date.** There are no hedging costs, as defined by the Law, to keep the position open till the Expiry date.
	Hedging costs (Stressed market conditions)	N/A	**There are no costs to keep the position open till the Expiry date.** There are no hedging costs, as defined by the Law, to keep the position open till the Expiry date.

Figure 8 "What are the costs?" Section of the KID on ENEL call options on shares.

[64] *Cassa di Compensazione e Garanzia* S.p.a., "CC&G".

[65] As disclosed on the first paragraph of this chapter.

The Costs section, which is the last main point of the Informative disclosure the manufacturer is required to add, shows all the costs that the investors will incur in when dealing with the PRIIP.
In this case, the entry and exit costs are 0,24% and 0,1%, respectively. This is synthesized in actual cash assuming a 10.000 EUR investment and a 3% return keeping them until expiration.

Options only have this kind of transaction costs when they are traded, thus other sections are non-significant and left blank. The KID model is standardized for every PRIIP, even for options for which the manufacturer is obliged to present every section, but still, the cost section may be useful to compare different derivatives with different fixed costs, even if there is usually only one manufacturer for each market, and so there is little room for competition on this side. Once again, this section seems to be more interesting for other kinds of PRIIPs, such as mutual funds, where the investors have costs when holding, in addition to the ones when the transaction occurs, and are a huge discriminant point between different alternatives.

How long should I hold it and can I take money out early?

This product does not have a minimum holding period, nor Borsa Italiana recommend a specific holding period. Positions on this Product can be opened and closed on any day when the IDEM market is open for trading, during its trading hours. Alternatively, positions can be held till the Expiry date. For American options, the buyer can request an early exercise and close positions before the Expiry date. You can choose when you want to close your positions, depending on your investment strategy, your risk profile and expectations on future market conditions. Other fees charged by your brokers or advisors may apply.

How can I complain? For complaints about this KID or about information provided by Borsa Italiana on this Product, please contact us via the information provided in section 'Other relevant information'. For complaints about the information and services offered by your broker, please contact your broker directly.

Other relevant information: No other information is relevant to the purposes of this KID. For additional information, you can contact Borsa Italiana at the following e-mail: KID.derivatiIDEM@borsaitaliana.it.

Figure 9 "How long should I hold it and can I take money out early?" Section of the KID on ENEL call options on shares.

This leads us to the analysis of the last section required to be in the KID, found at the end of the third page, which recalls some information of the second section on the suggested holding period, specifying several differences between American and European options, which, again, may be more relevant for other

kinds of PRIIPs, since, in this example, there is no specification of the actual nature of the product. The KID then finishes with indications on how to complain and how to ask the manufacturer for information with an email address to contact them in case of need.
This last section only has an informative purpose and does not seem to address any behavioral issues in the investor.

2.3 - Critiques

The KID discussed above is a clear exemplification of the law's requirements and shows the main purpose of this kind of informative document.
As already noted, it is not so clear how KIDs may be useful for the more standardized PRIIPs including, for example, options, which always behave in the same way, and so their KIDs will always be the same for every product. They are typically short-lived products and so they do not have much historical data that may make a significant prospect scenario, and the main costs on trading them are usually made by the broker and not the manufacturer.[66] The fact that derivatives' KIDs are a standardized disclosure of these products, not addressing the actual details that differentiate them from one another, for example their underlying size or their contractual nature (European, American, etc.), will cause consumers to still lack these informations for this kind of product since only manufacturers are requested to prepare the KID, and the broker, who is the actual point of contact between the investors and the market and knows which kind of product is being traded and at which cost, does not have any disclosure requirements about a further specification of the product. In the example process we showed for the KID, in order to know the underlying size of

[66] That, for instance, in the exemplary broker chosen for this Italian option (trading it from Italy) will be of one Euro fixed when entering the position, irrespectively of the order size. https://www.degiro.it/data/pdf/it/NIB_Tariffario.pdf
It is worth pointing out that this is a discount broker, and as such the fees are very low, but in other institutions the costs on this kind of transactions may be very significant and they could impact the final return for the investors.

the Call options, alongside its contract specification (if it is a European or an American one), we had to browse the website of the manufacturer to find the standard contract marketed for the underlying class we are interested in, and from there we checked the nature of our product. This process would surely be more straight forward if this kind of information were presented in the KID, making it appear as a more specific address of the product, like what happens for the UCITS where the disclosure is specific for the product of interest, or at least it requires the broker to specify it in their website or trading prospect giving the investors all the information.
Regarding these standard products, a compulsory brief education course (that, in our opinion, may be standardized for every financial institution) would surely be incisive in order to give useful information to the users. Retail investors would have to check the course before being allowed to trade determined products, so to increase the knowledge on the price dynamic of the product, which is briefly and not exhaustively explained in the KID.

An interesting study conducted by the *Politecnico di Milano*[67] shows that the KID has certain limitations. In fact, this study showed the many issues present in the actual industry practice when adopting this regulation. The survey, which involved 20 Italian intermediaries,[68] aimed to analyze the level of disclosure regarding the KID and MiFID 2 requirements on the availability of certain information for retail investors and the clearness of these informations, both for the *ex-ante* and *ex-post* disclosure requirements.
They tried to get in touch with these intermediaries by pretending to be a new client either for a consultancy service or portfolio management, and they found out that 18 months after the entry into force of the regulations, only 25% of KIDs fully complied with the law, mainly regarding the cost disclosure. They also found out that 60% of the time this data was given by way of mouth to the client instead of being given on paper or at least digitally. The low compliance level may make

[67]Available here: https://www.soldionline.it/files/pdf/20190828/mifid-2-trasparenza-costi-luglio-2019.pdf
[68] As disclosed in page 5 of the document, they were mainly banks.

it seem that either the industry does not perceive this kind of material useful or is simply too costly to have a proper compliance for the smaller firms.

On an ESMA's call for evidence on cost disclosure in 2019,[69] many investment firms and consumer organizations made some critiques, mainly referring to the sparse evidence that the disclosure has a significant effect on the behavior of consumers and the issues manufacturers have following the PRIIPs KID cost disclosure,[70] which, as we saw above, is problematic since the costs for some products are not directly imputable to the manufacturer. In addition, they present several issues regarding the computation of the cost they are responsible for as required by the delegated regulation on the matter of cost disclosure. Some other issues were highlighted from consumer organizations regarding the still complex language used in the document, which may be difficult to understand for some retail investors (even if the manufacturer, when preparing KIDs, were asked to try to avoid jargon). Others, on the side of the industry, noticed that the *ex-ante* disclosure slowed the process of providing the investment services and that they require some laxer policies on the disclosure requirements for professional users on certain instruments, and ESMA has shown to agree on that regard. This is particularly relevant since the main issue for most of the interested parties in the ESMA call, was the desire to make a hybrid figure of semi-professional users, that would have less requirements on cost and charges disclosure while maintaining the flexibility on their actual position.[71]

Another further issue has arisen for European Retail investors in the aftermath of

---

[69]To be founded here: https://www.esma.europa.eu/sites/default/files/library/call_for_evidence_impact_of_the_inducements_and_costs_and_charges_disclosure_requirements_under_mifid_ii__0.pdf

[70] For instance, see: Blackrock BETTERFINANCE, INVESCO, BEUC here: https://www.esma.europa.eu/press-news/consultations/call-evidence-impact-inducements-and-costs-and-charges-disclosure

[71] Which is important for instance for taxation matters, since being a professional investor, which is possible according to MIFID, requires certain Obligation on other matters.

the KID regulation: they have been almost completely excluded from the United States' ETF and other products. Since American manufacturers[72] are not required to produce a KID or a similar document for their markets[73] and due to the fact that they mainly target American investors, they do not have the interest to sustain the costs of a PRIIPs' KID compliance to trade their products in European markets, which have less liquidity than the American ones, not causing a massive issue on their side. It is worth saying that European investors can however still buy American index funds (even in US Dollars) by European based manufacturers or branches of American ones which moved to Europe, but only the main manufacturer can handle the cost of complying with all the regulation required, mainly on the fiscal side,[74] and are able to open a new branch in the EU territory.

The reduced supply of investment products is surely an issue to consider, giving the aim to increase the efficiency of European Markets for the consumers, that lack many interesting options to invest in funds worldwide.

This behavior is not surprising for extra-European manufacturers, since the many issues presented in the regulation, which, for instance, from 31st December 2021 will see (if not properly amended before the deadline) UCITS to have to present both PRIIPs KID and UCITS KIID, further increasing costs and complexity.[75] Other troubles in the regulation field with issues in the amendment of the delegated regulation on some points, that saw the EIOPA board not being able to reach a qualified majority,[76] which, in turn, stopped the provision to the

---

[72] And for what matters, none outside the EU, but with the US markets, being the biggest worldwide is an issue to consider.

[73] As reported here: https://www.justetf.com/ch/news/etf/us-domiciled-etfs.html

[74] Even if this is another matter, it is worth nothing that US ETFs has to formally have some swap contract that allows them to give the return to the European (but for the matter every overseas one) investors, so to cope with some fiscal regulatory issue they face in the United States.

[75] Simmons & Simmons So where are we now...? An FAQ on where things stand on PRIIPs KIDs for UCITS, August 2020.

[76] As reported here: https://www.eiopa.europa.eu/sites/default/files/publications/letters/2020-07-20-esas-letter-to-berriga-on-outcome-of-esa-review-of-priips-delegated-regulation.pdf

commission of some advice on implementing the regulation[77] that remained a Draft, sure does not help these extra-EU manufacturers change their mind and face the challenges of such a legislative environment.

Even if all these issues were accounted for and if, as we have disclosed, the aim of this kind of product was to improve markets efficiency through the regulation of consumers' behavior, it is worth saying that the current KID has helped to improve consumers' understanding of the products they are facing. In fact, in a consumer testing commissioned by the European Commission, around 70 percent of surveyed consumers were able to properly allocate the funds in the products they were presented to with their respective KIDs.[78]

Even if the KIDs have somehow improved the capital allocation between investors and the comparability between different products in a way that, as we saw, has taken into account many of the known cognitive biases in the financial field in order to help retail investors to better understand some of the risks they face, this is surely not enough to smooth the functioning of the markets on the retail side. When non properly advised, consumers will still be prone to the many cognitive biases and misconceptions of risk that we have analyzed in the first chapter, and, as such, financial education with a focus on de-biasing will still be the main tool that governments have in order to improve market efficiency.[79] Alongside this, a review of the requirements in the KID is desirable in order to improve the information disclosure that addresses some of the points disclosed in this chapter, regarding the standard document. Furthermore, an improved supervisory power on some European Agencies, which verifies the level of compliance by the industry, may surely be beneficial for the investors.

---

[77] To be found here: https://www.eiopa.europa.eu/sites/default/files/publications/letters/annex-to-letter-priips-rts-draft-report.pdf

[78] Consumer Testing - Retail investors 'preferred option regarding performance scenarios and past performance information within the Key Information Document under the PRIIPs framework, February 2020, FISMA/2019/016/C Final Report.

[79] See again *supra note* 28, page 55.

Regarding the amendment of the current KID regulation, in 2020, the European Commission launched a survey[80] that aimed to understand even further the impact of the current disclosure on consumers and to review the regulation in order to address the latest empirical findings on the subject. These plans were made in the frame of the "New Capital Markets Union plan";[81] that will surely lead to further development in the Informative documents for retail investors, and it will hopefully address the weakness we highlighted here.

Even if these kinds of instruments, with all the limitations we showed, may be helpful, investors are still prone to have many cognitive issues in their day trading operations, and as we will see in the next chapter, un-advised investors in chaotic environments of an internet forum could potentially have a huge impact in market efficiency.

[80] Can be found here: https://etendering.ted.europa.eu/cft/cft-display.html?cftId=5959

[81] Communication From The Commission To The European Parliament, The Council, The European Economic and Social Committee and the committee of the Regions A Capital Markets Union for people and businesses-new action plan, September 2020.

PAGE INTENTIONALLY LEFT BLANK

Chapter 3 - An Example of retail investors' behavior: The Game Stop frenzy and r/WallStreetBets

As we disclosed throughout this work, investors, and, more generally, all human beings, are prone to what psychologists and behavioral economists call Cognitive Biases. This kind of misbehavior was once limited to single investors or financial agents, who would have acted individually, and may somehow be isolated from others when making their decisions. Therefore, they could try to be as rational as possible if they knew something about investments, being in contact with only financial data. In more recent years, there has been a spread of social platforms on the internet where retail investors can meet virtually and discuss stocks and other topics regarding their investments, helped by the reduced barriers to enter the world of investments. For this reason, the effect these biases may have on them are now more significant for the general market well-functioning. These gathering places become "Echo Chambers",[1] places that have the potential of impacting the behavior of consumers, which intensifies the preexisting belief of the participants who may decide to only consume information that is coherent with their views, triggering their Confirmation Bias[2] on top of increasing the trading volumes in markets from retail traders, diverging from any classical financial model of rational funds allocation.

These kinds of investment behaviors are what studies call "Social Finance",[3] a kind of herd behavior, which, is relevant even between the financial industry professionals, where information flows among peers and is able to induce them to enter into some financial positions as a sort of contagion.[4]

In this kind of environment, peer effect increases what is called "joint

[1] J. Anthony Cookson, Joseph E. Engelberg and William Mullins "*Echo Chambers*" January 15, 2021.

[2] As disclosed in Chapter 1, paragraph 1.2.3.

[3] David A. Hirshleifer, "*Behavioral Finance*" 2014.

[4] Patrick Bayer, Kyle Mangum, J W. Roberts "*Speculative Fever: Investor Contagion in the Housing Bubble*", 2011.

consumption"[5] of the financial goods, where people enjoy trading financial investments as an opportunity to have something to talk about with others, while building an identity in a community.

An example of these kind of communities is found on the popular forum platform "Reddit",[6] which became famous during the beginning of 2021 for the news media coverage on the "GameStop" stock Short-Squeeze.[7] We will analyze the events that occurred within this community since it provides evidence of retail investors behavior, while being an example of how these new ways of consuming financial information work within these social communities.

3.1 - r/WallStreetBets

Reddit is a social media platform where people can post contents of various nature and the users can comment on them anonymously since every profile is identified by an imaginative nickname that does not usually give much information about the person behind it.

In Reddit, there are many different communities (called subreddits, recognizable by the "r/"sign before the name), where people gather to discuss certain topics by either posting or commenting on other people's posts. These subreddits work as independent sections of the website with their own graphics and webpages. Every subreddit post is divided into 3 sections: "top" "hot" and "new" posts. The contents are placed into one of these sections according to the time they were posted and if they are trending on the platform, which is decided by the other users according to the number of "upvotes" or "downvotes" that each of them

[5] Leonardo Bursztyn, Florian Ederer, Bruno Ferman, Noam Yuchtman "*Understanding mechanisms underlying peer effects: evidence from a field experiment on financial decisions*", 2014.

[6] https://www.reddit.com

[7] For example, to understand the amount of coverage on the topic see: https://www.nytimes.com/2021/02/02/business/gamestop-stock-trading.html

gets, once the moderator of each community approves the content according to the subreddit rules.

One of these subreddits is the notorious "WallStreetBets" (WSB),[8] which, as reported in their homepage, was founded in 2012 and is the largest financial related subreddit[9] with more than ten million subscribers[10] at the time of writing, i.e. the end of May 2021. WSB has seen a huge increase in participation after the COVID-19 lockdowns in 2020, with a peak at the end of the year due to people being bored at home and having more cash disposable because of reduced leisure activities, thus deciding to enter the community in order to approach investing.

3.1.1 - Third places

A 2020 sociological analysis[11] of WallStreetBets, which analyzed the forum alongside interviewing some of its members, presented the subreddit as a "Third Place",[12] which, according to the definition, is a place where people find themself at ease gathering with other people, that is neither their home nor their workplace.
Third Places share some common peculiarities. They are neutral places that level out the differences among the members. In WSB, there are plenty of different demographic subjects, from the financially educated professionals[13] to the 18-

[8] https://www.reddit.com/r/wallstreetbets/
[9] There are other financial subreddits such as "r/investing", "r/stocks", "r/Fire", which generally have a more conservative risk attitude, and are usually denigrated by the WSB users.
[10] For reference, see: https://subredditstats.com/r/wallstreetbets
[11] Christian J. Boylston, Beatriz E. Palacios, Plamen T. Tassev, "*WallStreetBets: Positions or Ban*", 2020, pages 12-24.
[12] Based on this study: Oldenburg, R. "*The Great Good Place: Cafes, Coffee Shops, Bookstores, Bars, Hair Salons, and Other Hangouts at the Heart of a Community*" (3rd edition), 1999.
[13] For instance, Keith Gill (also known by his nickname on reddit "DeepFuckingValue" or "TheRoaringKitty" on his YouTube channel), who became renown after the

year-olds who want to be part of the community and have just downloaded a brokerage app without any clue of the mechanics of the financial markets. Interestingly, according to the above mentioned research, the demographic of this sub reddit seems to be prevalently of male users, usually going from college-year students to people in their early thirties.[14] They all share the same goal of making (possibly fast) money through a risk-prone attitude to trading, and have a strong feeling of camaraderie, where they all celebrate the victories of others even if they are in competition among themselves and are somehow sympathetic among each other when someone gets a huge loss, but always keeping a good dose of sarcasm.

Another characteristic of these kinds of "third places" communities is the continuous conversation flow with a language that is recognizable by the users. In this subreddit, it is constant throughout the day and it is not always regarding financial analysis or posting one's position in a trade,[15] but it is riddled with the production of satiric material (which, on the internet, takes the name of "Memes") in the form of vignette or videos, that induce a playful mood in a context that otherwise could get quite serious since the topics they get into are not usually addressed in such an ironic way. This makes people feel at ease, to the point of provoking a spirited and less inhibited vocabulary that people do not usually use with their families or at work. As it becomes clear by analyzing any post within the subreddit, users call themselves "autist" or "retarded", even if it usually seems to have a positive meaning within the community as a point of pride for

---

GameStop stock spike in January and testified at the American House Financial Service Committee about his big options position, where he said that "He likes the stock" and he had no aim in market manipulation, is a CFA Charteholder and a licensed security broker. For reference, see for instance: https://www.reuters.com/article/us-retail-trading-roaringkitty-idUSKBN29Y0AF

[14] That, as we saw in first chapter analysis, are the ages where the consumers tested led to the worst outcome when making decisions about capital allocation.

[15] That, as it is noted in the research, is the mandatory thing to do in order to successfully be posted in the forum; no speculation on a trade without showing one's own position usually gets accepted by the moderator, and even if it got posted, users won't believe the genuineness of the idea if neither the authors seem to agree on it putting their money at risk.

reckless behavior, and is generally a way to have some fun, it may, however, be an issue for the accessibility of newcomers who may feel unwelcome if they do not get the mood of the forum about the use of these terms. Indeed, this use of vulgar and exuberant words is more of a kind of slang that people use to identify to and set the tone in the whole subreddit, rather than being used to denigrate others, it is usually used to cheer a peer up after an unsuccessful trade or to blame their self-diagnosed autism for their actual success rather than their actual skills or luck.[16]

This playful mood of theirs appears to reflect a sort of agnosticism about financial events, which are in fact seen as a matter of pure luck and randomness, highlighting their gambling perception of the markets, by usually commenting on the posts of others to give a sense of the events with comments like "Sir, this is a Casino" or other comments highlighting this kind of belief. This perception is even more evident from the name itself of the subreddit "WallStreetBets" that suggests that a gambling perception of the markets may have been the exact foundational reason of this community.[17] The playful mood is also evident when someone tries to post something serious regarding their financial analysis[18] and is often called a "boomer" or is being asked to go back to r/investing.[19] This also evidences the distaste WSB users have for traditional financial institutions which emerged clearly in the recent GameStop (GME) case. In fact, users wanted to "make Wall Street pay"[20] for all the damage they believe these institutions made

[16] See *supra note* 11, page 18.

[17] Interestingly, even one of the founders of the subreddit, Jamie Rogozinski even published a book on that matter: "*WallStreetBets: How Boomers Made the World's Biggest Casino for Millennials*", in 2020.

[18] That could be either a technical analysis (TA) or, as they call it "Due Diligence" (DD) where they analyze a firm fundamental. They Both have their own flare in the sub reddit where a reader can sort posts according to the topic they are interested in.

[19] That, as we saw, is a more serious and risk conservative financial subreddit.

[20] For instance, see: https://www.reddit.com/r/wallstreetbets/comments/l6omry/an_open_letter_to_melvin_capital_cnbc_boomers_and/

to their life in a "rigged system",[21] by going against the positions of some hedge funds that have short position on GME, in a sort of crusade, as we will further address later.

Even though there are more than 10 million users on WallStreetBets, there are some "regulars" or recognizable users, with some of them having left a mark for their particularly reckless or "brave" trades that have transformed them in "heroes" or recurring joke materials even if they quit posting.[22] Other regular references in posts are made by referring to certain public figures with "friendly" nicknames (at least when their actions make the markets move on their side), so the FED's Chairman Jerome Powell is called "J-Pow" and is referred to as the "Savior of stocks"[23] or Tesla patron Elon Musk is called "PapaElon" and is praised for his tweets that usually have a large market impact.[24] This common background of jokes and belief, increase the feeling of being part of a community, sharing "values" and a goal with other strangers, increasing their bound in an sort of "home away from home", which is another relevant characteristic of "third places" alongside the recurring references, that are relevant points to making a cohesive community where these people decide their financial investments, and at the same time lead to some form of fun and enjoyment beside the daily recurrences of their lives.

These factors will surely have an impact on their ability to co-ordinate, and, with a good dose of low risk aversion, they have the potential to be disruptive in the

---

[21] Here an example of a post where a user believes that financial markets are rigged about "the average investors": https://www.reddit.com/r/wallstreetbets/comments/l7yi1s/if_the_market_crashes_now_theyll_try_to_blame_it/

[22] In addition to the previously mentioned DeepFuckingValue that became famous in the subreddit for having led the GME action, some other users have left a mark for not-so-good trading that make their posts or names recognizable through the posts as is stated in *supra note* 11 page 21.

[23] Since, when the Covid-19 pandemic had its downturn in the markets, Powell's speech usually made the market rise.

[24] For reference, see: https://www.cnbc.com/2021/01/26/gamestop-jumps-as-elon-musk-tweets-out-reddit-board-thats-hyping-stock.html

markets.

3.2 - Gamble behavior and the GameStop Frenzy

WSB users (or, as they call themselves "degenerates") are known to have a High-Risk trading behavior: they tend to buy near expiration out-of-the-money options,[25] that are typically very cheap and at the same time very risky positions toward a determined security. Options generally have a high exposure to the underlying movements, that can see their prices oscillate wildly when the stock underneath moves due to the high leverage these kinds of contracts usually have. This issue is even more exacerbated by the short time before expiration, which sees many components affecting the pricing of Options in a nonlinear manner. These options will generally tend to be worthless at expiration but, if their predictions were correct (or usually, some unpredicted market movements happen) these can lead to huge returns for a comparatively little amount at risk.[26] For this reason, options are appealing for investors: "Call" options trading offer a potentially infinite upside (the price can go up indefinitely) and a limited downside (represented by the premium paid to buy the option), and they will lead, in the case in which the prediction was correct, a higher return comparatively to the same bet on the underlying instrument (typically a stock) with a reduced required capital allocation. Even more, "Put" options allow the traders to take speculative positions on the decreasing of the underlying's price, with the option that will increase in value when the price decreases, again with a limited downside.

---

[25] Meaning that they are far from being profitable, by reaching the strike price stetted, and so they are very cheap since there are little chances of them getting profitable. For a more detailed explanation on options dynamics please see, again: John C. Hull, "*Options, Futures and Other Derivatives*", 9th Edition, 2015, Chapter 10.

[26] This kind of trading practices is referred to by the members of the community as "YOLO" (You Only Live Once) play, and when they pay-off, the returns are called "tendies"; this kind of post has specific flair on the subreddit where it is possible to only see determined categories of post based on that. For instance, see: https://www.reddit.com/r/wallstreetbets/?f=flair_name%3A%22YOLO%22

Research[27] into these speculative trading styles, which clearly resemble Gambling, has in fact showed similarities with the behavior of lottery-ticket gamblers. Indeed, both activities share similar traits, such as the belief of being above the average (and so to be more likely to win the bet), the ambition of having a rosier financial future, which leads to addiction to the gamble, they are moved by emotions to avoid fear and regret of not placing their bets when it is believed to have chances to win[28] alongside a genuine enjoyment of the gambling process. As we noted in the first chapter,[29] the belief of winning in a gamble against the odds is due to the fact that people have a weak conception of probability due to heuristics and general limited statistical education. Options positions may seem even closer to lottery tickets than general stock investments, since both these types of bets will eventually expire and thus be worthless but can sometimes pay out huge amounts of money if luck turns in the short time before expiration; in contrast with common stock trading that won't usually have a such a high pay-off and does not have an expiration date where investors will lose all the allocated capitals.

The enjoyment of the game is even more intensified in an internet forum, where, due to anonymity and the fact that is a social gathering place, it spurs, for the reasons that we saw in the introduction, many cognitive and behavioral issues, that, in force of 10 million users may be relevant for the whole market functioning alongside for their finances.

---

[27] Statman, M. " *Lottery Players/Stock Traders*.", 2002.

[28] The so-called "Fear of Missing Out" and "Overconfidence" that we disclosed in the first chapter, section 1.2.4.

[29] Chapter 1, paragraph 1.2.3.

3.2.1 - GameStop

In January 2021, the forum became famous to the public due to the "Short Squeeze" that started from the users against a Hedge Fund which had some short position on the Game Stop Stock. A Short Squeeze (or, as it is more technically defined, Gamma Squeeze) is a deliberate act of increasing the market price in order to put pressure on the other participants that hold a short position on the security. A Short position is the act of borrowing a stock at a determinate price, selling it, and believing that the price will decrease, re-buying it for a lower price, and returning it to the original owner after a certain amount of time. Clearly, if the price increases, the shorter will lose money on the trade, and will aim to re buy the stock in a close time before it increases too much in order to avoid a margin call.[30]

This is exactly what happened in January 2021 with the GME stocks: certain hedge funds had some significant short position on the securities which reached 140% of the actual market capitalization[31] and users in the subreddit bought a large amount of GME shares and options in order to artificially raise the price, leaving little spare for the hedge fund to buy in order to reduce their losses. Buying call options is an inexpensive and quick way to rise a stock's price, even more if there was a scarcity of them. Since call options give the holder the right to buy the options, the seller, who is usually a financial intermediary, will hedge their position by buying some of the underlying stock as the price rises, making the price increase even more, which leads to a huge profit for the options holder, and huge losses for the short sellers.[32] This is usually not easy or inexpensive to apply, but since there were millions of users in WSB, who, even with a little

---

[30] For a more detailed analysis on Short Selling, see: John C. Hull, *"Options, Futures and Other Derivatives*", 9th Edition, 2015, pages 105-106.

[31] For reference, see: https://www.economist.com/graphic-detail/2021/01/27/day-traders-have-sent-gamestops-share-price-sky-high

[32] For a detailed explanation of the process, see for instance: https://www.forbes.com/sites/georgecalhoun/2021/03/05/gamestopgamestonk-has-nothing-to-do-with-the-madness-of-crowds/?sh=72f9f4f125d0

amount of liquidity, united together against these hedge funds and even required one of them, Melvin Capital, to get a Bail-Out of 2.75 Billion dollars from another intermediary to avoid bankruptcy[33] in the aftermath of the stock price raising from about 20 dollars per share in the middle of January to more than 350 dollars per share the 27th of January, with record trading volume for a single security in a single day[34] as appears in Figure 9.

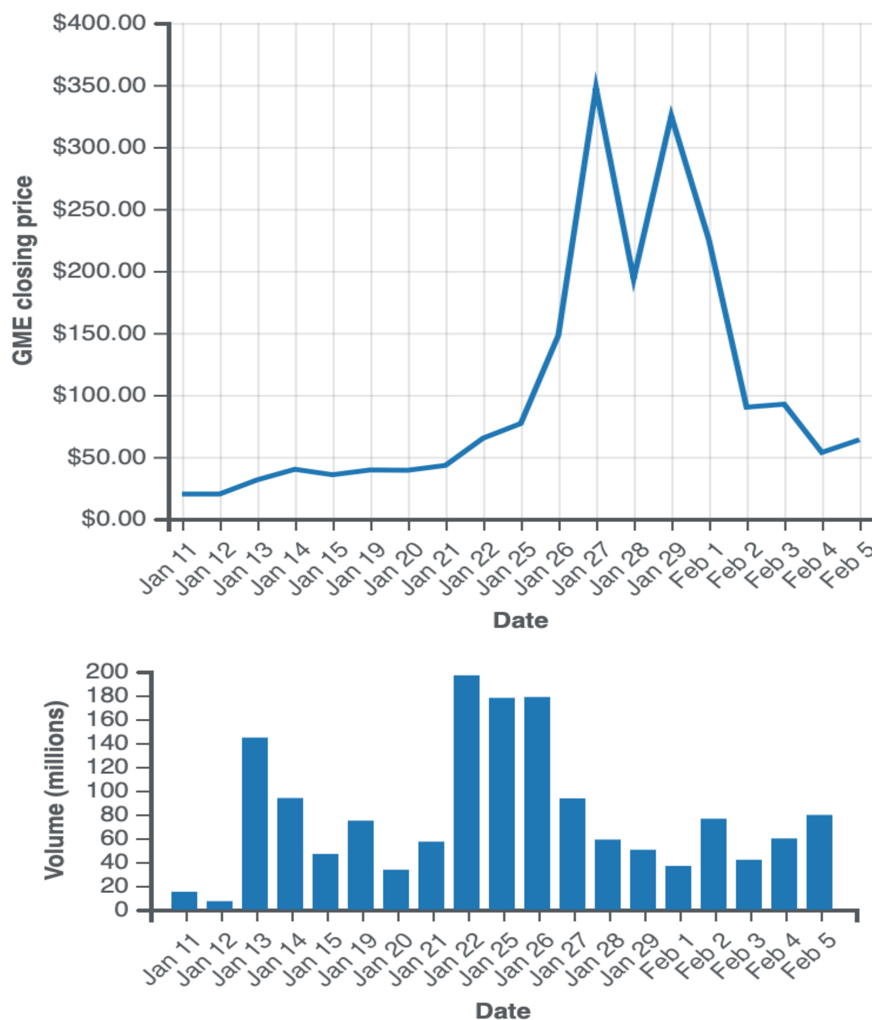


Figure 9, GameStop stock closing price and volumes at the time of the squeeze.

---

[33] For reference, see: https://nypost.com/2021/01/25/this-short-seller-just-got-a-2-75-billion-bailout/

[34] For reference, see: https://www.forbes.com/sites/georgecalhoun/2021/03/10/gamestop-the-second-surgeanatomy-of-a-gamma-swarm/

These events, which attracted the attention of the media and many prominent financial practitioners who either critiqued or praised them, and some even claimed to have taken similar positions in the firm, brought by a bunch of illiterate traders coordinated in a forum, to effectively make one of the biggest short squeezes of modern time, that eventually have the American regulators to induce a committee to investigate if there was evidence of market manipulation, shows the effectiveness that these communities may have in the real world.
ESMA took note of the exuberance of the period, and with a statement[35] showed its perplexity on the matter highlighting the risk of losses for the investors and presenting its doubts on a possible market abuse.

3.3 - Behavioral Analysis

The dynamics and general behavior in the GameStop case are pretty clear and confirm the analysis we made on the social value of these kinds of trades: people like to talk about a determined financial position because they see others doing so, and the hype about that will soon spread through the community that will, in a sort of feedback loop, have an actual impact on the financial markets, that will lead to even more overconfidence between the investors, and will eventually skyrocket the underlying price.

As noted in a recent paper that analyzed Wall Street Bet trades,[36] this sort of contagion will initially lead to a huge increase that is unstable in the short term, and then, with the first signs of crash, people will panic-sell their position, which, as was the case for GME when the shares returned to around 100 dollar per share at the beginning of February, will reduce the actual impact on the return for most of them that decide to hold their position even if at a loss.

---

[35] ESMA70-155-11809 17th February 2021.

[36] Valentina Semenova and Julian Winkler, "*Reddit's self-organised bull runs: Social contagion and asset prices*", May 2021.

Even if some kind of events that are moved by a random crowd of small investors may seem silly or naive, it is fair to say that the odds in the GME short squeeze where on their side. In fact, a study[37] on the "Due Diligence" (DD) posts on the subreddit, found out that these kinds of recommendations, when followed, lead to a two-day abnormal return of about 1,1% for the "buy" signals, which is statistically significative and is way more than what the average retail investor gets in other communities. Furthermore, they found out that during the quarter after these signals, the abnormal return averaged at around 6%, which is again very significant, inducing to believe that, at least a slice of the users, actually have a clue of the market functioning, and that the others know how to discern the quality of the report they face, that led to an increase of at least 7% in the retail trading volume after the publication of "DD", due to the herd effect and the general social value of these trades that we disclosed above.

These kinds of behaviors have surely given even more reasons for economist to doubt the traditional *Homo Oeconomicus* theories of full rationality as well as the efficiency of the market, even if they sometimes appear to be quite "rational" and profitable in their trades.

Even if these retail investors seem to be somehow effective on average when trading, they are surely prone to huge cognitive issues and they often lose huge amounts of money from their positions, such that their positions have a specific flair in the home page, namely called "Loss" that usually gets named "Loss Porn" by the users, where they post their losing position, that, in order to respect the guidelines, must be above 10.000 USD.

Losses, which could naturally appear in a financial transaction, appear to be intensified in the retail investors portfolio, probably also due to their little or complete lack of education regarding behavioral issues.

For instance, they often refer to have "Diamond Hands", which is how they ironically define their reluctancy to sell stocks or options they have in their

[37] Daniel Bradley, Jan Hanousek, Russell Jame, and Zicheng Xiao, "*Place your bets? The market consequences of investment advice on Reddit's Wallstreetbets*", March 2021.

portfolios, and so to keep the position even at a loss. This is a clear Prospect Theory and reference-dependance issue,[38] since once the price has increased over a certain point, the trader will reformulate their sensitivity to the price movement and consequently reduce their loss-aversion leading to a different one from the initial perception of gain and losses that leads to holding the position because of the new context due to the Anchoring Effect[39] that will see people lock to the newer prices as their new reference point. The Status-Quo Bias,[40] which is closely related to this "Diamond Hands" behavior, refers to when people tend to avoid a simple change from the current situation, such as closing the losing position or the gaining one in good time, which can save the allocated capital. In the case of options trading, this behavior may be dangerous since as time flows towards expiration, they will lose most of their value and they will eventually lose all their money if nothing happens, or conversely, a new fluctuation can easily reduce their value from a profitable position.

It is entertaining to note that the early take of gain or losses, when they primarily appear, is generally called "Paper Hands" (from Paper gain or losses, i.e., a result that is only virtual, on paper, before closing the positions), and as such "Diamond Hands" goes in direct antithesis to this kind of behavior. Indeed, it is somehow more conservative, and may reduce the portfolio's losses that the other people would have by holding their position. "Paper Hands" goes in the opposite spectrum of prospect theory in regard of loss aversion but may have reduced the pain for many investors when their positions have decreased. This was the case of GameStop, where many users still had their stocks position even if the actual price was less than a third of their highs at the time of the squeeze.[41]
However, in the case of a drastic reduction in prices, "Paper Hands" may be somewhat risky for the functioning of the markets as well. In fact, in this case,

---

[38] For a further explanation on these biases, please see: Chapter 1, section 1.2.2.
[39] For reference, please check chapter 1, paragraph 1.2.4.
[40] Again, for a more detailed disclose on this bias, please see: Chapter 1, section 1.2.2.
[41] For instance, see:
https://www.reddit.com/r/wallstreetbets/comments/lrm5ps/diamond_hands_lets_go_beyond_plus_ultra_gme/

scared investors may trill a sell-off process led by fear of a bigger market crash, which leads to an actual one. This was the case for many retail investors that reportedly[42] panic-sold their positions in cryptocurrencies at the end of May 2021, when news about the crypto world led them to believe a huger crash would happen, having these assets plummeting by more than 30% in a day in many cases, just to have them return to a moderately higher price just days later.[43]

However, it is worth nothing that many retail traders, incentivized by the reduced requirement in many brokerage apps to obtain margin for their trades, usually have leveraged positions,[44] which, in the case of a sudden market crash, could somehow rationally justify the "panic selling" since being exposed to more than the amount deposited could lead to their financial bankruptcy if not promptly addressed.

These kinds of behaviors seem to argue with the general prospect theory concepts that will see people adverse to losses[45] and buying fixed income instruments, while here they tend to buy risky products in order to hopefully get huger gains.

Overconfidence[46] is another general issue between the users of this trading community and with many of them believing that their reckless trades will go "to the moon!", usually accompanied by some rockets emojis,[47] clearly shows how

---

[42] For reference, see:
https://www.economist.com/finance-and-economics/2021/05/20/as-bitcoin-lurches-wall-street-plots-its-way-into-cryptoland

[43] For reference, see:
https://www.forbes.com/sites/jonathanponciano/2021/05/23/crypto-crash-intensifies-as-losses-eclipse-12-trillion-just-two-weeks-after-markets-all-time-high/?sh=490559607407

[44] For reference, see:
https://finance.yahoo.com/news/43-of-retail-investors-are-trading-with-leverage-survey-172744302.html

[45] For Instance, the equity premium puzzle and the tendency of most investors found to go for the fixed income instruments instead of the riskier positions. For reference, please check chapter 1, paragraph 1.2.2.

[46] For a better explanation of these issues, check Chapter 1, paragraph, 1.2.3.

[47] For reference, see:

they get overly confident in their trades. Their overconfidence appears to be even more intensified by the crowd since seeing others' gains or other "peers" holding on certain positions will increase the feeling of "being right" and being bombarded by usually mono-directional input on trades. This can easily trigger Confirmation Bias as well by only looking for information in the news or more simply in the posts of other users that confirm the ideas someone generated in the community to justify their positions, that indeed, as showed previously, is the exact effect that these social media platforms have as "Echo Chambers".
These behaviors, pumped by the crowd effects, would surely have investors trigger their Illusion of Control,[48] i.e., the believe that the gains are made by their genius (or in that case by their fictional autism) and the losses can be perceived as not their fault since the shame may be imputed to others faulty suggestion to trade some instruments and so to potentially increase even more their overconfidence and these egocentrism biases.

This kind of reasoning leads to think of the Availability bias[49] as well, where people will tend to use the latest information as the most significative in their decision making, since they are the easiest to recall, and may lead to incorrect conclusions regarding the profitable position of other people which may not be such a good idea after these stocks have already risen heavily in the days before. Furthermore, these Due Diligence posts are usually written on top of all these biases, so, in a very optimistic way that would ignore many issues, it will see a Framing Effect[50] issue, since the facts would often be presented in the best way possible, and so it will lead to the incorrect judgment that these ideas are actually better than they are. All these biases will be moved by the "Fear of Missing Out" (FOMO)[51] behavior that will lead people to act (usually quickly) into following

---

https://www.vox.com/the-goods/22264303/wallstreetbets-reddit-gamestop-stocks-language-community

[48] That we recall, is into the "Confirmation Bias" category. For reference, please check chapter 1, paragraph 1.2.3.

[49] Again, please check chapter 1, paragraph 1.2.3 for a further disclosure on these biases.

[50] For reference, please check chapter 1, paragraph 1.2.2.

[51] FOMO, for a better disclosure on that check chapter 1, paragraph 1.2.4.

others advice, usually to avoid the regret of not buying certain products, probably since in the past they have avoided such decisions which would have turned out to be quite profitable. Quick decision making is usually dangerous since it leads to the use of scarce cognitive capability and thus all the heuristics disclosed would be very probable to appear in the retail investors.
These biases, on top of the previously disclosed Gambling tendency and the general misconception of statistical issues,[52] may be a concrete explanation for the, at first look, unjustified exuberance through some positions or the tendency to bet huge amounts of money in risky plays.

This leads us to the Herd effect, that, as we saw, has the potential to move markets, and is one of the main leaders of irrational exuberance[53] where even a somehow rational individual trader can get overwhelmed by the pressure of the other peers to trigger FOMO, leading to potentially destructive financial bubbles. This is the case that The Economist[54] found out to be relevant in the recent increase in value and interest for the "ESG" (environmentally and socially responsible firms),[55] where the users of WallStreetbets with their "meme stocks",[56] i.e., some recurring stocks or firms they target as investments either because they like them or they believe they are the new promising growing industry (that, in this case, is represented by ESG). Since many retail traders

---

[52] That as we saw in chapter 1, paragraph 1.2.1 is a general issue in individuals.
[53] Robert Shiller, "*Irrational Exuberance: Revised and Expanded Third Edition*", 2016.
[54] For reference, see:
https://www.economist.com/finance-and-economics/2021/05/17/green-assets-are-on-a-wild-ride
[55] For a more comprehensive definition please see:
https://www.investopedia.com/terms/e/environmental-social-and-governance-esg-criteria.asp
[56] These stocks generally include electric vehicle firms, such as Tesla, or other Chinese competitors such as NIO or XPEV, that went wild at the end of 2020, and led some of them to fall for some scams such as "Nikola" a truck firm that claims to produce electric trucks, which prices skyrocketed before it appeared to be a scam. For reference, see:
https://finance.yahoo.com/news/tesla-stock-performance-wallstreetbets-mentions-030527307.html and
https://www.reddit.com/r/wallstreetbets/comments/itt50p/nikola_motors_the_real_story/

there believe this sector can be what Tech was in the early 2000s, "green" stock in the past years dramatically increased their returns, with their views on energy transition and electric vehicle firms that gained disproportionately higher average return in respect of certain general indexes including the S&P 500 even if about 30% of these firms were loss makers in their balance sheets. People, in force of the many biases we disclosed they may have in such an environment, are leading these prices skyrocketing. These events are indeed raising fear for an actual green stock bubble led only by exuberance and not very strong fundamentals, that, ironically, with these firms being bought hoping that these will be part of new bubble, may actually generate a new one.

Since the risk of uncontrolled and highly leveraged investors may have dramatic consequences for their financial situations, on top of the markets movements that they lead, regulators have taken note[57] of the recent frenzy and gave recommendations to retail investors, but, at the moment, the actual regulation seems to be lacking a proper solution to avoid these kinds of risks.

3.2.1 Behavioral Regulation Issues

How can regulators try to overcome these kinds of issues?

Misbehavior in the financial markets has always happened, even if now the effect appears to be riskier because of the higher volumes moved by not financially educated groups of coordinated retail investors, which may have bigger consequences in the financial markets than before. These issues are further amplified by the media which, due to the easy reparability of material from the forums, have the chance to talk about them even more, potentially increasing the herd effect in people outside the communities.

[57] ESMA70-155-11809 17th February 2021.

Many regulators tried,[58] controversially, to block short selling and curbed trading[59] for some stocks in periods of increased volatility, such as in March 2020. If trading curbs make sense behaviorally, in order to let consumers cool-off their exuberance or panic selling (since curbs apply to drastic changes in prices in both directions) and eventually try to take a step back and look differently at their trade, short selling ban is however more directed to just limit losses, and indeed is usually a bad idea, since it will limit the price discover process, reduce liquidity in markets in periods where smooth market functioning is very important, and doesn't seems to have actual effect in limiting downsides for stocks prices.[60]

However, the main tool regulators in the EU have used to try to address some of the behavioral issues in retail investors, is the previously discussed "KID". These can surely help investors understand the financial dynamics and details of their products, but without a clear reference of the correct use of them, such as when it is reasonable to have leveraged positions or put money in risky derivatives products, KIDs do not appear to be useful in regard of educating investors to avoid this kind of reckless behavior that will harm their finances. Even if in the above mentioned case of GME, most of the users of WallStreetBets were based in the United States and so they did not have the same informative documents before trading, the European Union retail traders analyzed these positions as well,[61] and it seems like the issue could not be useful in overcoming

[58] For instance, The Italian Market Authority (CONSOB) in some days of 2020, trying to limit the losses during the Covid-19 induced crash, limited the short selling for the Italian markets. For reference, see: https://www.consob.it/web/consob-and-its-activities/other-regulatory-measures/documenti/english/resolutions/res21303.htm

[59] For reference, see: https://www.reuters.com/article/us-europe-stocks-short-selling-idUSKBN2101LN

[60] For reference, see: https://www.wsj.com/articles/restraints-on-short-selling-wouldnt-calm-markets-11584906733

[61] For instance, on DEGIRO, the most used discount brokerage app among retail investors, in January, GameStop was the most traded stock in most of European Countries. For reference: https://www.degiro.co.uk/knowledge/blog/most-traded-stocks-january-2021

it by the actual version of these documents, since, as we argued in the second chapter, the points addressed in these documents are weak and redundant.

If more financially illiterate people continue to join the stock markets, it may seem reasonable to implement KIDs or other similar (hopefully more incisive) documents for a wider range of products, since even the most *plain-vanilla* one may not be very clear for these kinds of investors, and the dynamic of these may be as dangerous as the one of the PRIIPs which already require a disclosure.

The revision of these informative documents should, in the opinion of the author, include more technical-informative details when disclosing them, that should include the dynamics of the prices in further details, showing the many possible outcomes that the instruments may have during their life. For example, during a stock split (in the case these were implemented for a wider range of instruments), or the various points that affect options and other derivatives trading such as margin calls or the exact rights being exchanged during the transaction. Regulators should further ask for a detailed disclosure on the risks of these kinds of instruments where improperly used, so, on top of the already presented risk-for volatility index, such as the risk for them when used with leveraged trading or some typical dynamics of the products, that, as mentioned, is the main point of misunderstanding when trading a specific product, that a specific informative document could address.

Since these procedures may still be redundant and standardized or cannot be addressed in detail without making KIDs very long which would make them ineffective since, as we saw in the previous chapter,[62] many investors do not already read their KIDs, education is the main point to be addressed in order to overcome these kinds of risky misbehaviors in the average consumer and, as already mentioned, it may be sensible to oblige retail investors to check educative materials on their products before being allowed to trade them. Since non-professional users can trade complex products without many constraints,

[62] For reference, please check chapter 2, section 2.3.

which is a good thing for the general market efficiency and where a ban on these kinds of products for the retail side may be difficult to justify into the neo-liberal approach which, as we saw,[63] the European Union has in its law-making process, as an extreme act of paternalism. Thus, the focus should be into the educative processes, that may hopefully even be disposed to the general public, about the financial rationale for investments, the effect of compound interests for accumulation processes for retirements. A general disclosure on the risks of several of the more speculative products or trading styles, such as the one we showed in this chapter, should, however, not forget to include a "de-biasing" procedure, that will make people conscious of their cognitive limitations, for a well-being process that goes further than the mere financial stability and that will hopefully avoid many risky behaviors to be repeated in the future.

These kinds of educative policies are surely more costly to implement than a simply document to disclose details of the product, which may indeed be a cheap trick regulator used in order to show they are acting to overcome an important problem, and increase their popularity, but without being very effective in helping the consumers they aim to protect and to guarantee as much as possible the financial stability that investors need for their financial investments for their future.

Since KIDs have many issues and reduced pros, in order to avoid all the costs the intermediary must face to comply with them, it may sometimes be better to avoid implementing a limited-effect regulation for the sake of political material and try to put more effort in education and other tools that may result more useful to overcome these behavioral issues.

[63] For a more detailed analysis of this, please see chapter 1, paragraph 1.3.2.

Conclusions

The present work aimed to give a disclosure of the Behavioral Economic and Law literature review, showing the effect that cognitive biases have in retail investors, alongside an exemplary application of the results of these findings by the European Regulators with the implementation of the KID.

Behavioral economics and law literature is wide and always improving with new insights that may be useful for regulators in order to understand human beings, their cognitive limitations and how they could try to make regulations in order to fit these cognitive issues in the best way possible that addresses these issues.

As we discussed, many studies, both from political institutions and academies, have been delivered regarding this topic and an interest on behavioral regulation has surely been high in the past decade, such that regulators throughout the world have developed many examples of regulations made according to these behavioral insights.

However, as we presented, KIDs seem to be somehow ineffective in helping people to undermine behavioral biases and will instead see its best results as a mere informative document that sometimes even lacks this informative quality. The actual version of the KID, as already mentioned, should be applied, in our opinion, to all the financial products and hopefully addressing a wider range of points, even if it may be meaningless since the goal declared in the assessment work was to have a short document that should be of easy and quick comprehension. On top of that, we saw the critiques that the intermediaries and other sources moved about the doubtful effectiveness of these documents, and the definite costly nature that the implementation of such a regulation will have on the actual industry practice, that virtually excluded European consumers from the main American funds and other products.

Since the more standardized issues are not promptly disclosed in these documents, and the behavioral issues are not easy to address in a passive,

hardly read short document, regulators should find other solutions to overcome these issues.

Since the misbehavior in the financial field is now, more than ever, an issue for the markets' well-functioning, due to the increased volume moved by the multitude of irrational small traders in huge groups, as we saw for the Wall Street Bets case, regulators would now have to quickly address these issues for the financial well-being of these investors and the smooth functioning of the market.

As we suggested through this work, nudging is not usually the best idea in order to fix these issues. Because of the controversy these kinds of laws have and the reduced impact they can achieve, we believe that education is the best option to try to inform the present and future generations of investors about the financial world hopefully with a de-biasing action on the matter.
Education is surely the best way to try and avoid the repetition of some of the misbehaviors we disclosed in the third chapter, since the complexity of some the instruments retail investors use and the many dynamics financial markets have, a three-page standardized document does not seem to be the best way to address these issues.

A well-structured educative process, that can be either rolled out in schools or when approaching the brokerage apps or intermediaries, as a mandatory material, that ideally European agencies can prepare concerning the matters of their competences, or even better the national authorities, that, following a standard form given by the EU, can address more in detail many other complex topics that often don't follow the same path through the union, such as taxation or other policies on dividends etc., in the native language of the investors.
These courses should be, in our opinion, mandatory before being allowed to trade any instruments, and should be taken individually by the investors on their own, with some tests that verify the actual understanding of the subjects, in a fashion that may resemble the Know Your Costumer procedure i.e. when opening an account, but hopefully more impartial and incisive in seeing what

investors know or understand, alongside a proper risk aversion test that sometimes seems to lack or be biased by the intermediary to fit their own interest.

Since behavioral issues are intrinsic in human beings, the best aim for regulators will be to get as many people as possible to become conscious of their cognitive limits, in order to be the most incisive as possible within the financial markets. Since education is a value aside from mere financial matters, governments can achieve their goal of having people aware of their limitations that can improve their life *tout-court* without being too intrusive into their freedom, and these kinds of actions will surely fit with the neo liberal approach that will "use" individuals through markets to achieve efficiency or the goal they prospect to have, this time without forcing anybody to make decision, but highlighting their limitations.

Regulation is surely a powerful tool that governments possess to be incisive within the financial markets, but they should not be a cheap tool they use to gain political credits, by showing to be doing something even if not completely useful.

We will conclude using a medical metaphor of naïve intervention:
iatrogenics, literally, "[the damage] caused by the healer" is what happens when an invasive intervention in a patient with a small issue can sometimes be more harmful than not being treated. This is the case when it comes to the KID regulation, where the benefits are less than the actual damage they had in the financial sector. Sometimes the regulator should look for a more comprehensive diagnosis that aims to cure the whole problem, that, as suggested, could be achieved by educating the public to understand themselves and their limitation, so to let them heal by themselves.

REFERENCES

- ANUJ S., DANIEL O. (2008), *Heuristic Made Easy: An Effort-Reduction Framework*, Psychological Bulletin, Vol. 134, No 2, (pp.207-222).

- ARKES H.R. et al. (2008), *Reference point adaptations: Tests in the domain of Security Trading*, Organizational Behavior and Human Decision Processes, No. 105 (pp. 67–81)

- ARKES H.R., BLUMER C. (1985), *The Psychology of Sunk Costs*, Organizational Behavior and Human Decision Processes, Vol. 35, No.1, February, (pp.124-140)

- ASCH S. (1946), *Forming Impression on* Personality J. Abnormal & Soc. Psychology, *The Journal of Abnormal and Social Psychology, 41*(3), (pp. 258–290)

- ASHTON A.H. & ASHTON R.H, (1988) *Sequential Belief Revision in Auditing,* The Accounting Review Vol. 63, No. 4, October, (pp. 623-641)

- BANERJEE A. (1992), *A simple model of herd behavior.* Quarterly Journal of Economics*,* Vol. 107, No. 3, August, (pp. 797-817*)*

- BAR-HILLEL M., NETER E. (1980), *The Base-Rate fallacy in Probabilistic Judgments*, Journal Acta Psychologica Vol. 44 Issue 3 (pp. 211-233)

- BENTARZI S., THALER R.H. (1995), *Myopic Loss aversion and the Equity Premium Puzzle*, The Quarterly Journal of Economics Vol. 110, No1, February, (pp. 73-92)

- BETTER REGULATION EXECUTIVE, NATIONAL CONSUMER COUNCIL, (2007), *Warning: Too much information can harm,*
  Available Here:
  http://www.eurofinas.org/uploads/documents/policies/NCB-BRE-Report.pdf

- BOYLSTON C.J., PALACIOS B.E., Tassev P.T. (2020), *WallStreetBets: Positions or Ban*, Georgia Institute of Technology. Available Here: https://arxiv.org/pdf/2101.12110.pdf

- BODIE Z. et al. (2014), *Investments*, McGraw-Hill,

- BRADLEY D., HANOUSEK J., JAME, R., XIAO Z., (2021), *Place your bets? The market consequences of investment advice on Reddit's Wallstreetbets*, (March),
  Available Here:
  https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3806065

- BROWN W. (2015), *Undoing the demos: neoliberalism's stealth revolution*., Zone Books

- BURSZTYN L., EDERER F., FERMAN B., YUCHTMAN N. (2014), *Understanding mechanisms underlying peer effects: evidence from a field experiment on financial decisions*, Econometrica, Vol. 82, No. 4, July, (pp. 1273–1301)

- CALABRESI G. (2017), *The Future of Law and Economics*, Jerusalem Review of Legal Studies, Vol. 16, No. 1, December, (pp. 167–178)

- CONSOB, (2015), *Quaderni di finanza*, *Financial Disclosure, Risk perception and investment choices Evidence from a consumer testing exercise,*
  Available Here:

https://www.consob.it/documents/11973/204072/qdf82.pdf/58dc22f8-504b-4bad-9679-610306359dfc

- COOKSON J. A., ENGELBERg J.E., MULLINS W. (2021), *Echo Chambers* January 15, Available at:
 https://osf.io/preprints/socarxiv/n2q9h/

- DANÌELSSON J. (2011) *Financial Risk Forecasting*, John Wiley & Sons Inc.

- DECISION TECHNOLOGY LTD, (2010), *Consumer Decision-Making in Retail Investment Services: A Behavioural Economics Perspective,* Available at: https://www.wiwi.uni-frankfurt.de/fileadmin/user_upload/dateien_abteilungen/abt_fin/Dokumente/PDFs/Allgemeine_Dokumente/Inderst_Downloads/POLICY_PAPERS_and_POLICY_RELATED_REPORTS/consumer_decision-making_in_retail_investment_services_-_final_report_en.pdf

- DIACON S., HASSELDINE J. (2007), *Framing effects and risk perception: the effect of prior performance presentation format on investment fund choice,* Journal of Economic Psychology, January, Vol.28 ,No. 1, (pp.31-52)

- ELLSBERG D. (1961), *Risk, ambiguity, and the savage axioms*. The Quarterly Journal of Economics, Vol. 75, No. 4, November, (pp. 643-669)

- FESTINGER L. (1957), *A Theory Of Cognitive Dissonance*, Stanford University Press

- FISCHHOFF B. (1975), *Hindshight ≠ Foresight: The effect of outcome knowledge on Judgment under uncertainty*, Journal of Experimental Psychology: Human Perception and Performance, *No. 1*(3), (pp. 288–

299.)

- HirSHLEIFER D.A. (2015), *Behavioral Finance,* Annual Review of Financial Economics, Vol. 7, (pp. 133-159)

- HULL J.C. (2015), *Options, Futures and Other Derivatives*, 9th Edition, Pearson

- KAHNEMAN A. & TVERSKY D. (1972), *Subjective probability: a Judgment of Representativeness*, Cognitive Psychology, Vol. 3 Issue 3, July, (pp. 430-454)

- KAHNEMAN D. (2011), *Thinking, fast and slow*, New York: Farrar, Straus and Giroux.

- KAMENICA E. (2008), *Contextual Inference in Markets; On the Informational Content of Product Lines*, American Economic Review, Vol. 98, No. 5, December pp. (2127-49)

- KÖSZEGI B., RABIN M. (2007), *Reference-Dependent Risk Attitude*, American Economic Review, vol. 97, No. 4, September (pp. 1047-1073)

- KRUGER J., ALICKE M.D. (1985), *Global Self-Evaluation as Determined by the Desirability and Controllability of Trait Adjectives*, Journal of Personality and Social Psychology*, Vol.49* No.6, (pp. 1621–1630)
- LANGER E. (1975), *The Illusion of Control,* Journal Personality & Social Psychology, Vol.32, No. 2, (pp. 311-328.)

- LEGGETT W. (2104), *The politics of behaviour change: Nudge, neoliberalism and the state*., Policy & Politics, Vol.42, No. 1, January, (pp. 3-19)

- LOEWENSTEIN G., O'DONOGHUE T. (2002), *Time discounting and Time Preference: A Critical Review*, Journal Of Economics Literature, Vol. 40, No. 2, June, (pp. 351-401)

- MASSÉ F. (2017), *Ambiguity aversion and the Home-bias puzzle,* Available at: https://www.vernimmen.net/ftp/Researchpaper2017_F_MASSE_Ambiguity_Aversion_and_the_Home_Bias_Puzzle.pdf

- MCMAHON J. (2015), *Behavioral economics as neoliberalism: Producing and governing homo economicus,* Contemporary *Political Theory*, No. 14, (pp.137–158)

- MILL S. (1859), *On Liberty.* Various Editions.

- MOORE M.T, HEALY D.M. (2008), *The trouble with overconfidence*, Psychological Review No. 115 Vol. 2, (pp. 502-17)

- NATIONAL BUREAU OF ECONOMIC RESEARCH (2016), Speculative *Fever: Investor Contagion in the Housing Bubble,*

  Available at: https://www.nber.org/system/files/working_papers/w22065/w22065.pdf

- NICKERSON R.S. (1988), *Confirmation Bias: A Ubiquitous Phenomenon in many Guises*, Review Of General Psychology, Vol.2 No.2, June, (pp. 175-220)

- OLDENBURG, R. (1999), *The Great Good Place: Cafes, Coffee Shops, Bookstores, Bars, Hair Salons, and Other Hangouts at the Heart of a Community* (3rd edition) Marlowe & Company.

- RAWLS J. (1999), *A theory of Justice 26*, Harvard University Press

- SEMENOVA V., and WINKLER J. (2021), *Reddit's self-organised bull runs: Social contagion and asset prices*, May.
Available at: https://www.inet.ox.ac.uk/publications/no-2021-04-reddits-self-organised-bull-runs/

- SHILLER R. (2106), *Irrational Exuberance: Revised and Expanded Third Edition*, Princeton University Press

- STATMAN, M. (2002), *Lottery Players/Stock Traders*. Financial Analysts Journal, Vol. 58, (pp.14–21)

- SUNSTEIN C.R. (2014), *Why Nudge? The politics of Libertarian paternalism*, Yale University Press.

- TALEB N.N. (2013*), Antifragile: Things that Gain from Disorder*, Penguin

- THALER R., SUSTAIN C. (2008), *Nudge*, Yale University Press

- TVERSKY A. & KAHNEMAN D. (1971), *Belief in the Law of Small Numbers*, Psychological Bulletin*,* Vol. 76 No. 2, (pp. 105–111)

- TVERSKY A. e KAHNEMAN D. (1973), *Availability: A Heuristic for judging Frequency and Probability*, 1973 Cognitive Psychology Vol. 5, Issue 2, September, (pp. 207-232)

- TVERSKY A., KAHNEMAN D. (1979), *Prospect theory; An analysis of Decision under Risk*, Econometrica, Vol. 47, No 2, March, (pp. 263-292)

- TVERSKY A., KAHNEMAN D. (1981), *The Framing of Decision and the*

Psychology of Choice, American Associations for the Advancements of Sciences, vol. 211 no. 4481, (pp. 453-458)

- TVERSKY A., KAHNEMAN D. (1983), *Extension versus intuitive reasoning: the conjunction fallacy in probabilistic judgment,* Psychological Review, No. 90 (pp. 293-315)
- TVERSKY A., KHALEMAN D. (1988), *Status Quo Bias in decision making*, Journal of Risk and Uncertainty, Vol. 1, No. 1, March, (pp. 7-59)

- WASON P. (1960), *On the failure to Eliminate Hypotheses in a Conceptual Task*, Quarterly Journal of Experimental Psychology, Vol. 12 No.3, (pp. 129-140)

- WINDSCHITL P.D., Stuart W.O. (2015), *Optimism Biases: Types and Causes*, Gideon Keren.

- ZAMIR E., TEICHMAN D., (2014), *The Oxford Handbook of Behavioral economics and the law*, Oxford University Press.

- ZAMIR E., TEICHMAN D., (2018), *Behavioral Law and Economics,* Oxford University Press.

LEGISLATIVE SOURCES

- DIRECTIVE 2014/65/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
  of 15 May 2014, on markets in financial instruments.

- COMMISSION STAFF WORKING DOCUMENT IMPACT ASSESSMENT Accompanying the document: Proposal for a Regulation of the European Parliament and of the Council on key information documents for investment products 3.7.2012

- COMMISSION STAFF WORKING PAPER IMPACT ASSESSMENT, Accompanying the document Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Markets in financial instruments [Recast], 2011

- Directive 2004/39/EC of the European Parliament and of the Council of 21 April 2004 "on markets in financial instruments"

- Regulation (EU) No 1093/2010 of the European Parliament and of the Council of 24 November 2010 establishing a European Supervisory Authority (European Banking Authority)

- Regulation (EU) No 1094/2010 of the European Parliament and of the Council of 24 November 2010 establishing a European Supervisory Authority (European Insurance and Occupational Pensions Authority), amending Decision No 716/2009/EC and repealing Commission Decision 2009/79/EC

- Regulation (EU) No 1095/2010 of the European Parliament and of the Council of 24 November 2010 establishing a European Supervisory Authority (European Securities and Markets Authority), amending Decision No 716/2009/EC and repealing Commission Decision 2009/77/EC

- REGULATION (EU) No 1286/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 November 2014 on key information documents for packaged retail and insurance-based investment products (PRIIPs)

- CONSOB Resolution no. 21303 "Temporary prohibition of taking and increasing net short positions in shares traded in the MTA Italian regulated market, pursuant to Article 20 of the Regulation (EU) of the European Parliament and of the Council no. 236 of 14 March 2012"
- COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS, A

Capital Markets Union for people and businesses-new action plan

- ESMA Final Report following consultation on draft regulatory technical standards to amend the PRIIPs KID

- COUNCIL DIRECTIVE of 20 December 1985 on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities (UCITS)”

- EFAMA Investment Fund Industry Fact Sheet, May 2010

- Commission Regulation (EU) No 583/2010 of 1 July 2010 implementing Directive 2009/65/EC

- ESMA Statement 17 February 2021 ESMA70-155-11809

PRESS SOURCES

- BURSZTYNSKY J. (2021), GameStop jumps after hours as Elon Musk tweets out Reddit board that’s hyping stock, CNBC, 26/1/2021, Available at: https://www.cnbc.com/2021/01/26/gamestop-jumps-as-elon-musk-tweets-out-reddit-board-thats-hyping-stock.html

- CALHOUN G. (2021), ‘GameStop/Gamestonk’ Has Nothing To Do With The Madness Of Crowds, Forbes, 5/3/2021, Available at: https://www.forbes.com/sites/georgecalhoun/2021/03/05/gamestopgamestonk-has-nothing-to-do-with-the-madness-of-crowds/?sh=72f9f4f125d0

- CALHOUN G. (2021), GameStop, The Second Surge: Anatomy Of A ‘Gamma Swarm’, Forbes, 10/3/2021,

Available at:
https://www.forbes.com/sites/georgecalhoun/2021/03/10/gamestop-the-second-surgeanatomy-of-a-gamma-swarm/

- CORBETT B. (2020), Restraints on Short Selling Wouldn't Calm Markets, The Wall Street Journal, 22/3/2020,
  Available at: https://www.wsj.com/articles/restraints-on-short-selling-wouldnt-calm-markets-11584906733

- DHALIWAL S., (2021), Tesla Stock Performance And WallStreetBets Mentions Have A 'Real' Connection: Barclays, Yahoo! Finance, 24/2/2021,
  Available at: https://finance.yahoo.com/news/tesla-stock-performance-wallstreetbets-mentions-030527307.html

- GOLDIN I. (2021), How herd behaviour drives action on r/WallStreetBets The Financial Times, 10/2/2021,
  Available at: https://www.ft.com/content/971df303-726a-4bdf-93eb-9a9e848f7109

- HADLY C. (2021), WallStreetBets is America , VOX, 4/2/2021,
  Available at: https://www.vox.com/the-goods/22264303/wallstreetbets-reddit-gamestop-stocks-language-community

- HEITKOETTER M. (2021), Paper Hands Vs Diamond Hands — A Boomer's Guide To WallStreetBets Ling, Seeking Alpha, 4/2/2021,
  Available at: https://seekingalpha.com/instablog/1046492-markus-heitkoetter/5551655-paper-hands-vs-diamond-hands-boomer-s-guide-to-wallstreetbets-lingo

- MCENERY T. (2021), This short seller just got a $2.75 billion bailout, New York Post, 25/1/2021.

Available at: https://nypost.com/2021/01/25/this-short-seller-just-got-a-2-75-billion-bailout/

- MOCCI F., (2021), MiFID II review: le indicazioni del final report ESMA su incentivi e costi e oneri, Diritto Bancario, 11/05/2020,
  Available at: http://www.dirittobancario.it/approfondimenti/servizi-bancari-e-finanziari/mifid-ii-review-le-indicazioni-del-final-report-esma-su-incentivi-e-costi-e-oneri

- MURPHY H., MORRIS S., MOONEY A. (2019), Mifid II has thrown up several unintended consequences, The Financial Times, 2/1/2019,
  Available at: https://www.ft.com/content/6644989a-02b2-11e9-99df-6183d3002ee1

- NOVA A. (2020), Many are chasing the stock market by day trading in the pandemic. It could end badly, CNBC, 21/9/2020,
  Available at: https://www.cnbc.com/2020/09/21/many-people-turn-to-day-trading-in-pandemic-few-will-be-a-winners.html

- OSTROFF C., MCCABE C. (2021), Dogecoin, Once a Joke, Moves Mainstream, The Wall Street Journal, 19/4/2021,
  Avaiable at: https://www.wsj.com/articles/dogecoin-traders-whip-up-doge-day-frenzy-in-push-toward-1-11618842535

- OTANI A. (2021), Teens Are Gambling Their Savings on GameStop Stock. Their Parents Are Worried, The Wall Street Journal, 5/2/2021,
  Available at: https://www.wsj.com/articles/teens-are-gambling-their-savings-on-gamestop-stock-their-parents-are-worried-11612540818.

- PRENTICE C., SCHROEDER P. (2021), Famed GameStop bull 'Roaring Kitty' is a Massachusetts financial advisor, Reuters, 29/1/2021,

Available at: https://www.reuters.com/article/us-retail-trading-roaringkitty-idUSKBN29Y0AF

- PONCIANO J. (2021), Crypto Crash Intensifies As Losses Eclipse $1.3 Trillion Just Two Weeks After Market's All-Time High, Forbes, 23/5/2021, Available at: https://www.forbes.com/sites/jonathanponciano/2021/05/23/crypto-crash-intensifies-as- losses-eclipse-12-trillion-just-two-weeks-after-markets-all-time-high/?sh=490559607407

- SCHLAEPFER D. (2018), Mifid II is driving smaller firms to the wall, The Financial Times, 30/8/2018,
Available at: https://www.ftadviser.com/regulation/2018/08/30/mifid-ii-is-driving-smaller-firms-to-the-wall/

- SCHLAEPFER D. (2019), Mifid II goes too far and is too costly to implement, The Financial Times, 11/1/2019,
Available at: https://www.ftadviser.com/opinion/2019/01/11/mifid-ii-goes-too-far-and-is-too-costly-to-implement/

- STEWART E. (2021), The GameStop stock frenzy, explained, VOX, 29/1/2021,
Available at: https://www.vox.com/the-goods/22249458/gamestop-stock-wallstreetbets-reddit-citron

- THE ECONOMIST (2021), A green bubble? We dissect the investment boom, The Economist, 20/5/2021,
Available at:
https://www.economist.com/finance-and-economics/2021/05/17/green-assets-are-on-a-wild-ride

- THE ECONOMIST (2021), As bitcoin lurches, Wall Street plots its way into cryptoland, The Economist, 20/5/2021,
  Available at: https://www.economist.com/finance-and-economics/2021/05/20/as-bitcoin-lurches-wall-street-plots-its-way-into-cryptoland

- THE ECONOMIST (2021), Day traders have sent GameStop's share price sky-high , The Economist, 27/1/2021,
  Available at: https://www.economist.com/graphic-detail/2021/01/27/day-traders-have-sent-gamestops-share-price-sky-high

- THE ECONOMIST (2021), High-frequency traders are in the spotlight, The Economist, 6/2/2021,
  Available at: https://www.economist.com/finance-and-economics/2021/02/06/high-frequency-traders-are-in-the-spotlight

- THE ECONOMIST (2021), How WallStreetBets works, The Economist, 6/2/2021,
  Available at: https://www.economist.com/finance-and-economics/2021/02/06/how-wallstreetbets-works

- THE ECONOMIST (2021), The markets, mad but modern, The Economist, 5/2/2021, Available at: https://www.economist.com/graphic-detail/2021/02/05/the-markets-mad-but-modern

- THE ECONOMIST (2021), As trading restrictions are lifted, the GameStop frenzy continues , The Economist, 29/1/2021,
  Available at: https://www.economist.com/finance-and-economics/2021/01/29/as-trading-restrictions-are-lifted-the-gamestop-frenzy-continues

- THE ECONOMIST (2021), How the GameStop saga threatens Robinhood, The Economist 1/2/2021,
  Available at:
  https://www.economist.com/finance-and-economics/2021/02/01/how-the-gamestop-saga-threatens-robinhood

- THE ECONOMIST (2021), Why the WallStreetBets crowd are able to profit from predatory trading, The Economist, 2/2/2021,
  Available at:
  https://www.economist.com/finance-and-economics/2021/02/02/why-the-wallstreetbets-crowd-are-able-to-profit-from-predatory-trading

- WOLF-MAN E. (2020), 43% of retail investors are trading with leverage: survey, Yahoo! Finance, 9/9/2020,
  Available at: https://finance.yahoo.com/news/43-of-retail-investors-are-trading-with-leverage-survey-172744302.html

- ZA V., ALLEN, N. (2020), Italy, Spain curb trading to stem coronavirus market crash, Reuters, 13/3/2020
  Available at: https://www.reuters.com/article/us-europe-stocks-short-selling-idUSKBN2101LN

WEBSITES

- Borsa Italiana, Derivatives lending page from an options' KID https://www.borsaitaliana.it/derivati/derivati/derivati.htm

- Calls for tenders from the European institutions, Disclosure, Inducements and Suitability Rules for Retail Investors Study
  https://etendering.ted.europa.eu/cft/cft-display.html?cftId=5959

- CFA Institute, MiFID II: What's Wrong with It?

https://blogs.cfainstitute.org/investor/2017/04/11/mifid-ii-whats-wrong-with-it/

- DEGIRO, Most traded stock per country, January 2021. https://www.degiro.co.uk/knowledge/blog/most-traded-stocks-january-2021

- Deloitte, Preparing for MiFID II: consequences and challenges https://www2.deloitte.com/lu/en/pages/mifid/articles/preparing-mifidII-consequences-challenges.html#

- Eiopa, Outcome of ESA review of the PRIIPs Delegated Regulation https://www.eiopa.europa.eu/sites/default/files/publications/letters/2020-07-20-esas-letter-to-berriga-on-outcome-of-esa-review-of-priips-delegated-regulation.pdf

- European Commission, Key information documents for packaged retail and insurance-based investment products (PRIIPs) - Regulation (EU) No 1286/2014 https://ec.europa.eu/info/law/key-information-documents-packaged-retail-and-insurance-based-investment-products-priips-regulation-eu-no-1286-2014_en

- FederConsumatori, Risparmio: Consob richiama banche e società di risparmio al rispetto della Mifid II. Federconsumatori è al lavoro per rendere più trasparenti e corrette le comunicazioni ai risparmiatori. https://www.federconsumatori.it/doc/risparmio-consob-richiama-banche-e-societu-di-risparmio-al-rispetto-della-mifid-ii-federconsumatori-u-al-lavoro-per-rendere-piu-trasparenti-e-corrette-le-comunicazioni-ai-risparmiatori/20190301024014

- Investopedia, Environmental, Social, and Governance (ESG) Criteria https://www.investopedia.com/terms/e/environmental-social-and-governance-esg-criteria.asp

- Investopedia, Mutual Fund vs. ETF: What's the Difference? https://www.investopedia.com/articles/exchangetradedfunds/08/etf-mutual-fund-difference.asp

- Investopedia, Undertakings Collective Investment in Transferable Securities (UCITS) https://www.investopedia.com/terms/u/ucits.asp#citation-8

- Just ETF, US-domiciled ETFs: why they are no longer available from many online brokers https://www.justetf.com/ch/news/etf/us-domiciled-etfs.html

- Reddit, r/WallStreetBets “YOLO” flair https://www.reddit.com/r/wallstreetbets/?f=flair_name%3A%22YOLO%22

- Reddit, r/WallStreetBets hompage https://www.reddit.com/r/wallstreetbets/

- Reddit, r/WallStreetBets Wiki, Options https://www.reddit.com/r/wallstreetbets/wiki/options

- Reddit, r/WallStreetBets, An Open Letter to Melvin Capital, CNBC, Boomers, and WSB https://www.reddit.com/r/wallstreetbets/comments/l6omry/an_open_letter_to_melvin_capital_cnbc_boomers_and/

- Reddit, r/WallStreetBets, If the market crashes now, they'll try to blame it on us https://www.reddit.com/r/wallstreetbets/comments/l7yi1s/if_the_market_crashes_now_theyll_try_to_blame_it/

- Simmons and Simmons, “So where are we now…? A FAQ on where things stands on PRIIPs KID for UCITS, https://files.simmons-simmons.com/api/get-asset/faq_on_priips_1.pdf?id=blt0cd42bd13ba389f8

- Simmons and Simmons, The Commission gets tough with the ESAs over PRIIPs https://www.simmons-simmons.com/en/publications/ckkcv5wgi1hyk0946slzisec6/the-commission-gets-tough-with-the-esas-over-priips

- Soldi Online, Come sta andando la MIFID 2. E un'iniziativa di Moneyfarm https://www.soldionline.it/notizie/etf-fondi/analisi-mifid-2-moneyfarm-politecnico-milano

- The New York Times, Game Stop https://www.nytimes.com/2021/02/02/business/gamestop-stock-trading.html

Acknowledgments

I would like to express my gratitude to Professor Andrea Minto, who, from the end of my bachelor's degree, has been an essential guide into my academic path with many meaningful insights that culminated into this final work.

Moreover, I would like to thank all the people who have been close to me in these crazy months of the pandemic, who definitely helped me remain focused in achieving this goal in spite of everything.

Lastly, I would like to thank all my colleagues in DFSEC, who have been very supportive in this final academic period, allowing me to complete my thesis while working together.