

# A Study of Behavioural Finance in Decision Making

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## ABSTRACT

The traits of human behaviour examined in this article have always existed, but the economy seems to have forgotten about them. Given that people are the driving forces behind this economic cosmos, why this is so remains a mystery. Perhaps a plausible explanation is that traditional viewpoints are too closed to the issue and lack the willingness to embrace and comprehend how the psychology of the investor affects his decisions and day-to-day financial movements.

**Keywords--** Finance, Decision, Human Behaviour

## I. INTRODUCTION

Throughout economic history, we find theories that try to explain the behavior of man within the financial environment, as well as the consequences of his actions. However, economic agents' activities have altered the global financial environment in a manner that contradicts economic rules and theories based on the efficiency and rationality of people.

Under the approach of classical economic theories, particularly neoclassical ideas from the 19th century, the notion of homo economics is offered, which holds that individuals act rationally with the expectation of maximising profits and aversion to risk. Nevertheless, if people had acted sensibly, maybe they would not have triggered tulip mania 4, Black Thursday 5, financial hangovers (tequila and vodka impact), a ninja crisis, and other financial crises and speculative bubbles that have occurred throughout history.

As an alternative to conventional economic theories, Behavioural Finance arose around the end of the 1970s, attempting to explain the financial decision-making behaviour of individuals from a distinct viewpoint of rationality. In other words, it attempts to provide a psychological explanation for the happenings of the financial world via the conduct of the persons involved.

In this sense, the objective of this article is to present the basic concepts and principles of the relatively new theory on human behaviour within Finance: Behavioural Finance. The main contribution of this work lies in the dissemination of this alternative perspective in the understanding of Finance for the participants of its different fields. That is, the understanding of this new paradigm has applications

in both personal and public, corporate, stock market and international finance, which we believe should be of interest to both individuals and companies.

The structure of the rest of this article is as follows: Section two briefly describes the methodology used in this study. Sections three, four, and five explain *prospect theory*, behavioral *finance*, heuristics, and biases, respectively; and finally, in section five some conclusions are outlined.

## II. METHODOLOGY

Given the descriptive nature and the objective of this article, the methodology used to carry out this documentary research integrates, firstly, an explanation of the concepts related to the Behavioral Finance theory and later a series of examples, assumptions or results of empirical *investigations*. seminal on this subject, which try to clarify the application of these concepts in the decision-making process of individuals. The following sections present these contents.

### *Prospect Theory*

In the 1970s, Daniel Kahneman and Amos Tversky officially presented themselves to economics with the publication of their theory The Prospect Theory in the journal *Econometrica*. They observed that the conduct of humans in economic settings containing uncertainty was completely illogical and inconsistent. Based on empirical facts, this theory focuses on more realistic elements of the ordinary man during decision-making under uncertain settings, given that this character lives in a world that changes and alters at a startling rate and where his surroundings is so relative. This is in stark contrast to homo economics and takes place in a realm of abstraction where economic models are characterised by their accuracy. This idea is based on the average behaviour of an individual or group in a world of uncertainty.

Kahneman and Tversky then continued their study on human behaviour in finance. In addition to prominent members of the financial academic community such as Thaler, Fama, Heirshleifer, Minsky, Shrefrin, and Slovic participated in these studies, giving rise to the modern era of finance and a new economic theory based on behaviour and psychological influence on financial decisions. This idea is known as "Behavioral Finance."

According to Kahneman and Tversky's (1979) Prospect Theory, gains and losses are appraised

differently, thus people base their actions on their perception of gains rather than losses. This theory is also known as "loss aversion theory," and its fundamental premise is that if you give a person with two equal alternatives, one presented in terms of potential profits and the other in terms of prospective losses, the individual will pick the first option. Continuing with the methodology of the preceding landmark work, this theory outlines how humans choose between probabilistic options when the risk is evaluated and the likelihood of various outcomes is unknown. In addition, he believes that the choices made by humans are more dependent on their psychological behaviour than on logic based on the Expected Utility Theory. In accordance with this theory, the rationale underlying the behaviour of individuals is that, because the alternatives are independent and distinct, the probability of winning or losing is assumed to be 50/50 rather than the actual probability; that is, the probability of winning is generally perceived to be greater. In their research, the founders of Behavioral Finance concluded that losses had a higher psychological effect on a person than similar gains. Therefore, given two options offered in two different ways that yield the same outcome, a person will choose the one from which he feels he would benefit.

#### **Behavioral Finance**

Behavioral Finance is an alternative field of contemporary finance that views the economic player as an illogical and inconsistent human while making financial and risk-related choices. An essential tenet of behavioural finance is that human decision-making routinely deviates from the behavioural predictions established by conventional economic theory. The Efficient Markets Hypothesis (EMH) and the Expected Utility Theory illustrate these notions (TUE).

Traditional economic theories presume that people behave rationally, in line with their declarations and postulates. They believe they are agents who make the optimal judgments, regardless of the degree of danger, significance, or uncertainty they may create, and they make these decisions in a reasonable and flawless way. Even if some individuals would rather not conform to these views, market forces would compel them to do so.

In fact, however, these assertions do not hold true, and not because they are poorly formulated, but because economic agents are human beings, with both strengths and flaws, capable of operating at a very high level of efficiency, but with the potential to act consciously or unconsciously. Economics cannot overlook the human situation since, by definition, it is a science concerned with human behaviour.

Behavioral Finance may be seen as an alternate method for analysing the economy's history or explaining the everyday behaviour of investors. This progression of financial thought serves as an analytical tool for comprehending the inefficiencies of the markets and decoding the decision-making process encountered

by people engaged in money-related matters. Consequently, Behavioral Finance may be described as the study of the influence of behavioural psychology on finance professionals and the resulting impact on markets (Sewell, 2007).

#### **Heuristics and Biases**

Behavioral Finance can be studied and understood through the analysis of the two pillars on which this theory is based: heuristics and biases, which try to give an explanation of the way in which humans really behave in situations that involve money.

#### **Heuristics**

At the time of making decisions, consciously or unconsciously we form judgments taking into account or not the factors that surround it. However, we are rarely sure if the decision is correct, since we let ourselves be carried away by intuitions, hunches, and experiences or by degrees of confidence. Therefore, our choices become more vulnerable to failure since they tend to be irrational due to the very natural human condition of imperfection.

Heuristics is the study of decision-making processes in a particular area of knowledge. Therefore, we now comprehend that heuristics are the tactics, techniques, criteria, or tricks utilised to simplify the solution of complex tasks. However, this is not always true. Sometimes the shortest and most convenient routes are also the darkest and most perilous, therefore the risk may be larger. In finance, in many instances, taking shortcuts might lead us to make poor judgments.

Kahneman and Tversky (1982) revealed that people utilise heuristics as shortcuts to solve issues in a simpler and less complicated manner, which may be advantageous in certain situations but can also lead to significant and systemic mistakes in others. Below is an explanation of the three heuristics that these writers identified in the judgements or thinking of individuals in uncertain circumstances.

#### **Representativeness**

According to this heuristic, people make their judgments based on previous explanations or concepts, rather than on a precise analysis of data, somehow expecting the world to behave in a certain way. An example of this heuristic is found when the price of a share belonging to a supposedly solid company reaches its historical lows; the rationality of the investor would consider it prudent to buy this type of shares because they are at low prices. Surely the analysis of the financial actor assumes that, as they are securities of company X, whose past performance has been quite favourable, the rational thing to do would be to buy low to later sell high, since in the past their prices have recovered and in the present there is no doubt that their evolution is similar. Considering that the world has a predetermined behaviour and asserting that what happened in the past is similar in the future, is an error in the perspective that one has of reality. That is, if a trend in the past was positive, it does not have to be so in the present.

The heuristic of representativeness is reflected in the fact that investors tend to lean towards historical results and balances, as a guide to predict future movements, instead of assimilating reality and relying on current data that reflects the true situation. In the above example, investors decided to invest expecting the stock to perform in a certain way based on its past performance and not how it might actually perform in the future. However, this stock could continue to fall in price, generating losses for investors who ignored reality and continued to invest their money, based on the irrational idea of expecting these titles to behave as they did before.

#### **Availability**

This heuristic affects the decision-making process in two different ways. First, many people make their decisions based on things they already know, rather than choosing something completely new and unknown (despite its advantages). Second, many people think that the information that is most available is the most relevant, that is, they are most affected by events that are easier to remember or by recent events. An example would be that many people choose to use credit cards with very high costs because their lifelong banking institution offered them instead of looking for a product that suits their financial needs, but since this decision would lead to going to a new bank and all the formalities and processes unknown to the interested party, he chooses what gives him greater comfort and confidence.

#### **Anchorage and Adjustment**

When people do not know a quantity, they make estimates based on an initial value, either because it is provided or because of some memory related to it, which is adjusted to give the final answer. The initial value, or starting point, may be suggested by the problem formulation, or it may be the result of a partial calculation. In any case, the adjustments are insufficient, that is, there are different starting points that make different estimates, which are biased towards the initial values. This estimation process is called anchoring. The practice of anchoring is one of the most frequently performed heuristics, because it works like a riddle to give an exact answer to a quantity. An "anchor" is to use a number as a starting point and the adjustment is the way in which we determine with points above or below the quantity that we want to determine.

In the literature on *Behavioral Finance* it has been shown that when the decisions to be made involve the estimation of quantities and the actual values are unknown, these are highly influenced by any information on which the decision maker can be anchored. For example, what would be the current level of a country's main stock index? It is very likely that the average person would not know what its current value would be, however most people "anchor" with the previous days index and make their own adjustment to determine its current level. According to Shiller (2001) this trend causes stock prices to be similar day after day,

because people are anchored to a price and the variations tend to be conservative. Sure if we want to make a change in the report on estimated sales for the following year, we will take previous years as data and, based on this, we will adjust to determine possible sales. The use of this shortcut is potentially harmful, because fundamental values are eliminated and absolute reality is detached so that our estimates are never or almost never accurate.

#### **Bias**

A bias is defined as any systematic error in a process, which leads to an incorrect estimate, derived from a quick choice, without consciously evaluating the real values. For Simon (1957), the human being does not remain conscious all the time, for this reason he is deliberately irrational and has neither the knowledge nor the calculation power that allows reaching a very high level of optimum concentration; therefore, there is no "perfect rationality" implied in classical economic theories. For this reason, it is assumed that the people involved in making financial decisions have a limited attention span and ability to store and retrieve information from memory immediately; since these professionals usually work in environments under pressure and with limited time to make decisions. This causes the mind to use mental shortcuts as methods of action to make a decision.

The problem is not in the use of these methods, but in the acceptance and frequency of them. Because these strategies simplify the assimilation of information, obtaining immediate decisions, people tend to use heuristics on a regular basis and consciously or unconsciously, generating heuristic biases.

Those of us who agree with *Behavioral Finance* consider that some psychological phenomena strongly influence the financial world. While *Behavioral Finance* recognizes that professionals apply practical rules or heuristics to process information and that they have biased beliefs that predispose them to commit errors (heuristic biases), traditional financial theory assumes that when processing data, professionals use the statistical tools adequately and correctly. The main biases, caused by the misperception of the information and during the decision-making process, are described below.

#### **Fallacy of the Player**

When it comes to probability, a lack of understanding can lead to false assumptions and predictions about the occurrence of events. In the gambler's fallacy bias, a person mistakenly believes that the occurrence of an event is less likely to occur after an event or series of events.

This thought is irrational because regardless of what happened in the past, it does not change the possibility of certain events occurring in the future. However, it is not difficult to imagine that in certain circumstances investors could easily fall for this bias. Some financial professionals consider that after a day of three or four consecutive days of rise in a stock, they

expect that the next day there will be a day of falls. Also when they sell a stock after a constant period of rise, because they believe that by having a bullish period, it will no longer go up and they choose to take profits with the fear of a decrease in the value of the share. Thus, there are situations where investors insist on buying stocks at a low price because they consider it unlikely that they will decline further in value. It is important to understand that in the case of independent events, the probabilities of a specific outcome remain the same, regardless of what preceded it.

#### **Herd or Pack Behavior**

This bias can be defined as the tendency of individuals to imitate actions (rational or irrational) of a larger group, regardless of personal opinion or perception. There are two main reasons for herd behavior: the first is social pressure to conform, and the second is the common belief that a very large group of people is unlikely to be wrong. After all, even if you find yourself convinced that a particular idea or course of action is irrational or wrong, you may still be in the pack, believing that the group knows what it's doing. These cases are frequent in cases where the individual has little experience.

This bias can be exemplified in the following true case: in 2008, the problem of *subprime mortgages* it was so big, caused by the herd behavior generated by the banking institutions. Bank "A" began to grant loans to people without the ability to pay or with a good credit history that they would later use to acquire real estate and something else, these people would pay a really questionable interest rate that would pay off for the banks and generate stratospheric profits. So, bank "B" analyses its competitor's new strategy and markets the product as bank "A". So we have banks "A" and "B" engaged in the same thing, later run out of money and go to banks "C" and "D" to grant them loans to settle their demand; then "C" and "D" They find this new lending practice attractive and join this activity. Since money is not unlimited, they ask "E" for a huge loan to be able to continue with the magnificent business together with the previous ones; now we have banks "A" through "E" involved. This practice led to a great economic crisis derived from the inability to pay creditors who had no fixed income or property to guarantee the loans. It is evident that this entry practice is not in accordance with the approach of the practice led to a great economic crisis derived from the inability to pay creditors who had no fixed income or property to guarantee the loans. It is evident that this entry practice is not in accordance with the approach of the practice led to a great economic crisis derived from the inability to pay creditors who had no fixed income or property to guarantee the loans. It is evident that this entry practice is not in accordance with the approach of the *homo economics*, that is to say, the rational decision-making of the individual.

In other words, those involved in the famous ninja crisis were aware of the damage that was being

caused in a large part of the world by this unlikely practice. In the documentary *"Inside Job"* (Ferguson, 2010) we can distinguish the lack of consistency and acceptance of guilt of the main architects of this crisis; what is alarming are the words and awareness of what was happening at that time: "we knew that this was not going to end well, the solutions were there but nobody wanted to make decisions." (Words of those involved in the crisis of the *subprime mortgages*).

#### **Risk Aversion**

Fear is an inherent factor in our daily lives, which causes confusion, insecurity, sadness and also, loss of money. On the other hand, gains and losses are not necessarily symmetric with respect to the amount of money one currently owns. For example, for a total estate of one million dollars, a gain of the same amount would always be welcome, while a loss of that amount would be a potentially bankruptcy situation. The implications of the potential loss would be much greater than those of the possible gain, even though the monetary value of the gain and loss is the same.

Loss aversion tells us about the way in which man is afraid of taking a risk to obtain a benefit and prefers certain negative results than betting on unconditional improvement. Loss aversion bias, empirically substantiated, is observed in a person's everyday life. Experiencing the loss aversion bias means that losing a hundred-peso bill on the street gives us greater unhappiness than the joy that finding a bill of the same value would generate. This is because according to Kahneman (1982), losses have a 2.5 times greater impact than gains.

This psychological problem of loss aversion is one of the main causes of market failure. During stock market days, investors have an extreme fixation on the purchase price of the shares; if this action reflects a loss, some investors prefer to wait long enough to get out "even" than to assimilate the loss that this has caused them. When another option would be to assume the losses in order to be able to invest in new actions that have a better performance perspective.

#### **Overconfidence**

The overconfidence bias is based on the premise that human beings tend to overestimate our activities, our knowledge and our prospects for the future (Camerery Lovallo, 1999). This bias implies that we tend to believe ourselves to be better predictors than what the empirical evidence actually shows.

Overconfident people, while they may be highly intelligent, are never as smart as they think they are, but their ego and optimism grow with each positive result in their work and even more so when it has been done under significant relaxation. Being overconfident inordinately affects those who do not have sufficient skills, or simply are not in a position to recognize their weaknesses.

Within the financial markets, these inconsistencies in the investor's mentality affect their performance since several of them may feel better than



their peers and this biases them to make subjective decisions due to an excess of confidence, which can lead to mistakes and generate negative results.

#### **Mental Accounting**

For psychological reasons, individuals tend to value more the goods obtained through effort and sacrifice. Speaking of money, they save and safeguard their salaries because it has been hard for them to keep their job and earn that salary, but what about the so-called easy money?

Mental accounting refers to the practise of assigning accounts and priority to money. Humans spend money gained without effort 95% quicker than money received via labour; this demonstrates that humans do not value money equally regardless of how it is acquired. In other words, individuals attribute various decision weights and values to money dependent on how it was acquired. This is an illogical dilemma since money is the same whether we earn it, discover it, get it as a gift, or inherit it; money will always be money and have the same value.

We find this irrationality in money management at all levels of the economy. Let's analyse the following assumption: You are going to buy a tuxedo with a price of \$10,000 and a scarf with a price of \$50. A friend informs you that the scarf is on sale for \$20 at another store, which is 5 minutes away. Would you be willing to move to the other branch to save \$30? This problem is simple, we have a benefit of \$30 and its cost only includes the transfer from one branch to another. Since the potential savings are associated with the scarf, the price of the tuxedo does not play a part in the decision. It has been shown (Thaler, 1985) that the desire to travel from one place to another to save \$30 pesos is inversely related to the price of the handkerchief (the cheaper the handkerchief, the higher the savings are perceived) and independently of the price of the tuxedo. . To verify this assumption, another version of the problem was elaborated, in which the price of the handkerchief is \$10,000 and \$9,970 in the branch, while the price of the tuxedo is \$50. The results were as expected, 68% of people would be willing to travel for 5 minutes when the price of the scarf is \$50, but only 29% would do so when the price of the scarf is \$10,000. In the first version, the subject thinks that he is saving 60% on the real price, while in the second version he thinks that he only saves less than 1% and that possibly by making the trip he could obtain said savings. This shows that although in both versions the benefit and the cost are the same, people raise certain problems in relative terms instead of in absolute terms; that is, a discount weight on a \$10 operation is considered better than a discount weight on a \$50 operation (Wong and Quesada, 2009).

As can be seen, there is an inconsistency in the decision, the possible savings are perceived differently and this causes the decisions to be different and contradictory to those that would be taken based on the classical economic theories based on the rationality of

the individual.

### **III. RESULTS AND DISCUSSION**

As stated at the beginning of this article, its objective is to explain and disseminate the basic concepts and principles of *Behavioral Finance*, in order to make them known to the academic community and the general public. Therefore, as a complement to the conceptual explanation of the basic elements of Behavioral Finance, this paper describes a series of assumptions, examples, and evidence from other studies, which were presented when explaining each concept. In the cases presented and given the human nature of the participants in the economy, the effect of this different form of rationality can be observed, which is based more on the psychological aspects of individuals than on the rational assumptions of economic theory. .

In this sense, the results of this conceptual analysis on the theory and foundations of *Behavioral Finance* make us reflect on the various situations in which we act or make decisions based on the precepts of this alternative financial theory. Although the scope of this research does not allow us to determine if these actions or decisions are correct or incorrect, at least it raises a point of discussion in the sense that perhaps on many occasions individuals make financial decisions, or of another nature, based on what in this article we explain as *Behavioral Finance*.

### **IV. CONCLUSION**

Man throughout his entire existence has been an imperfect being. In that imperfection, the individual has always struggled to excel at every opportunity presented to him. However, he unconsciously moves away from reality and objectivity in decision-making, consciously or unconsciously influenced by his feelings and desires.

The concept of *Behavioral Finance*, as Thaler (1999) already said, will be considered redundant over time, since there will only be one Theory of Finance, enriched by the inclusion of a more realistic behavior of economic agents. Undoubtedly, a better understanding of human limitations and a more realistic behavior will end up benefiting the decision maker much more than just having an innocent faith in his intellect.

The characteristics of human behavior analysed in this article have always existed throughout our lives, however the Economy seems to forget them. There is still no explanation for why, given that the agents that shape this economic universe are human beings. Perhaps a possible answer would be because the classical positions are too blind to the matter and do not have the openness to accept and understand that the investor's psychology directly influences his decisions

and daily financial movements.

However, these new contributions to economic theory are not intended to replace or refute the classical theories in Economics, but to help and contribute new ideas to better understand the economic world, as well as to seek coherence and congruence with a different rationality in making financial decisions.

Based on the above, interesting lines of research arise, which the authors of this article are currently carrying out, which focus on obtaining empirical evidence that supports or not the application of the concepts of Behavioral Finance, in the process of making financial decisions in situations of uncertainty or risk, by individuals. These empirical studies can be carried out in practically all areas of finance; However, in the literature on the subject, two clear groups of empirical research can be distinguished that set the tone for future research: a) applied studies in the area of personal or daily finance and b) those applied in the area of stock finance or financial markets. Likewise, the *Behavioral Finance* area is strongly related to the areas of *marketing*, consumer behavior and *neuromarketing*, which represent other horizons to extend this work.

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