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Heurísticos del comportamiento y las decisiones de financiamiento en las empresas

Behavioral heuristics and financing decisions in companies

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ABSTRACT

The process of making a financial decision assumes that each of the actions being planned or discussed involves two aspects: Profit maximization and cost reduction. Therefore, it is assumed that such decisions are entirely rational. Here the main question arises: People make rational decisions, not being influenced by behavioral factors that affect the quality of the decision and its outcome.

Therefore, we seek to determine whether financial decisions are rational and therefore respond to a hierarchy of preference in the use of financial resources (Pecking Order Theory), or whether there are behavioral factors that really affect this classic financial decision.

The research allows reviewing the existing theoretical framework regarding behavioral heuristics and financial decisions, starting from the seminal theories to the latest theories dealing with both variables.

Keywords: Decisions, financing, companies, heuristics.

RESUMEN

El proceso de tomar una decisión financiera parte del supuesto de que cada una de las acciones que se planifiquen o discutan involucren dos aspectos: La maximización de utilidades y la reducción de costos. Por esto, se supone que dichas decisiones son enteramente racionales. Aquí nace la interrogante principal: Las personas toman decisiones racionales, no dejándose influenciar por factores conductuales que afectan la calidad de la decisión y su resultado.

Por lo anterior, se busca determinar si las decisiones financieras son racionales y por tanto responden a una jerarquía de preferencia en la utilización de recursos financieros (Pecking Order Theory), o existen factores conductuales que realmente afectan dicha decisión clásica de las finanzas.

La investigación permite revisar el marco teórico existente respecto a los heurísticos del comportamiento y las decisiones financieras, que parte desde las teorías seminales, hasta las últimas teorías que tratan sobre ambas variables.

Palabras clave: Decisiones, financiamiento, empresas, heurística.

INTRODUCIÓN

Finance, as an area of knowledge derived from the economic sciences, is developed so that the users of the information can make three important decisions for the sustainability of companies. The first one deals with investment decisions, which seek to maximize benefits and minimize costs, which, when compared to the total investment and the cost of resources, should generate added value for the organization. For this, companies must carefully choose the investment options, selecting those that have the best probabilities of generating returns, always under the level of risk that the shareholder can tolerate and understanding that there is also a level of uncertainty that must be considered when determining the desired profit margins or the opportunity cost.

The second decision, a variable in this research, deals with the cost of resources and the means by which organizations obtain the cash flows they need to invest in assets. Therefore, when choosing the financial structure that serves as the basis for the development of the business line, decision-makers may find that the cost of obtaining funds, under the figure of "own resources" or equity contribution, is higher than the cash flows that can be obtained in the financial system. This is due to the fact that the risk assumed by the shareholder is greater than that of the lender, and this scenario is reflected in the rates of return required by each of them. Their consolidation, considering such rates, plus the weight that each contribution has within the financial structure, the risk and the opportunity cost, are combined in the determination of the weighted average cost of capital, which becomes the main parameter to measure the effectiveness of the actions implemented within the framework of the "first classic decision of finance".

On the financing decisions or how companies build their capital structures there are several researches, having the origin of the discussion of the problem in the research of (Modigliani, F. & Miller, M. 1958):

In much of his formal analysis, the economic theorist has at least tended to ide-step the essence of this cost-of-capital problem by proceeding as though physical assets-like bonds-could be regarded as yielding known, sure streams. Given this assumption, the theorist has concluded that the cost of capital to the owners of a firm is simply the rate of interest on bonds; and has derived the familiar proposition that the firm, acting rationally, will tend to push investment to the point where the marginal yield on physical assets is equal to the market rate of interest. This proposition can be shown to follow from either of two criteria of rational decision-making which are equivalent under certainty, namely (1) the maximization of profits and (2) the maximization of market value. (pag. 263)

The authors, as the main background for this research, discuss how the correct determination of the cost of capital in companies should be, considering that these companies will always seek a return at least equal to the interest rates (return) offered by the market. With this, the aim is to comply with absolute rationality, that is, to seek the maximization of profits and the generation of value for the market. At the end of the research, (Modigliani, F. & Miller, M. 958), claim to have achieved an operational definition of the cost of capital, that is, they propose the method and variables to be considered in its calculation, but they make an important warning for the present study; that this should always be considered in a rational investment decision making process.

It is precisely on the basis of this seminal postulate that the relationship between the selection of financial structures and non-rational decisions is sought. In this regard, the research of Simon (1965), which describes the following, is an antecedent:

Let me propose a methodological principle to replace Friedman's principle of unreality. I would like to call it continuity of approximations. It consists in that, if the conditions of the real world approximate the assumptions of an ideal type sufficiently well, the derivations on that assumption will be approximately correct. Unreality of premises is not a virtue of a scientific theory, it is a necessary evil, a concession to the finite computational capacity of the scientist that is tolerable by the principle of continuity of

approximation. (p.35).

With this reasoning, Simon initiates the debate on how scientific theories establish their premises to predict an event. Premises that, in the author's words, are unrealistic, but necessary if a result is desired.

In this regard, Kahneman, D. (2015) postulates the following:

Individuals will always be more sensitive to how an outcome deviates from their "reference level" (the status quo) than to the absolute outcome. When faced with a sequence of decisions under risk, they take each optimizing decision (of gains or losses) without registering the consequences for their wealth as a whole: they seem to be more loss averse, relative to their reference level, than partial to gains of equal amount.(p.126)

The reasoning, originally by Simon and later by Kahneman, knows that traditional analysis assumes that natural reactions to risk, such as aversion, propensity or simple neutrality are mostly independent of whether or not cash flows are generated. Therefore, in uncertainty scenarios, individuals are not aware of the effects of the decision, but they are aware of the "reference point" used to shape that decision. Therefore, in a scenario of uncertainty, individuals tend to modify their behavior in the face of gain or loss scenarios, maximizing subjectivity in the face of a negative outcome.

BACKGROUND OF THE PROBLEM

People make decisions every day in various aspects, and they also know that these decisions have different consequences depending on their level of complexity. This scenario is replicated at the business level, where executives seek the solution to their problems by applying various algorithms that lead them to make the best possible decision. In the field of finance, this ideal determination is expected to achieve profit maximization, cost reduction and value generation. This premise is applied under the assumption that people make entirely cognitive decisions, not being influenced by behavioral factors that may affect the quality of the decision and its outcome in the organization.

On behavioral heuristics

(Bustamante et. al) provides the following assessment:

Imagine flipping a coin repeatedly until you get "heads" for the first time. The game is stopped and the number of tosses that have occurred is counted. The amount the player has won is 2n, where n is the

umber of tosses to be made until the first "heads" is obtained. Individuals should pay a large sum since the expected value is infinite (assuming that the expected value had to be paid to enter the game), however, people will only be willing to pay a small amount for this type of betting. (p. 16)

This assumption reflects that firms evaluate profits in terms of expected return, therefore, this could be a premise to infer rational decisions regarding the financing variable. This concept is also confirmed by Neumann & Morgenstern (1944), when determining on the assumption that individuals are rational and have well-defined preferences, and that instead of making decisions maximizing the expected value of gambles, they seek to maximize their expected utility.

In this regard (Tversky & Kahneman, 1973) state the following:

It is for this reason that heuristics can be explained when a person does not use a rational process to evaluate the different alternatives for decision making; that is, because of the ease with which people make decisions based on approximations (p. 123).

Behavioral heuristics base their construct on the fact that when uncertainty exists, people (and therefore companies) have only an abstract sense of the desired rationality. For example, in family businesses, decisions may be affected by a succession process, an exceptional political or social scenario, a merger or business split, a certain work climate, the death of a family member, among others, which cause those responsible to adopt a position different from what is rationally expected.

Therefore, the present research seeks to determine in a first instance the presence of behavioral heuristics in decision makers, and in a second stage, to investigate the quality of the financial decisions that these individuals make in order to establish whether or not there is a

relationship between both research variables.

METHOD

According to Hernández et. al. (2014), a research design corresponds to the following:

Once the problem statement has been defined, the initial scope of the research has been defined and the hypotheses have been formulated (or not established due to the nature of the study), the researcher must visualize the practical and concrete way to answer the research questions, in addition to meeting the stated objectives. This involves selecting or developing one or more research designs and applying them to the particular context of your study. The term design refers to the plan or strategy devised to obtain the desired information in order to answer the problema statement Wentz, 2014; McLaren, 2014; Creswell, 2013a, Hernández-Sampieri et al., 2013 and Kalaian, 2008)." (p.128)

Then, to be more specific, Hernandez et. al. (2014), elaborates on the nature of non-experimental designs.

It could be defined as research that is carried out without deliberately manipulating variables. That is, these are studies in which we do not intentionally vary the independent variables to see their effect on other variables. What we do in non-experimental research is to observe phenomena as they occur in their natural context, in order to analyze them (p.152).

Therefore, the present research has a non-experimental design, qualitative approach and whose research subjects will be the research articles collected from various indexed journals.

THEORETICAL

Regarding Financing Decisions

With regard to financing decisions, we will begin the analysis with a review of the theories of financial hierarchization. In this regard, Briozzo et. al. (2016), expresses the following:

The financial hierarchy states that financing decisions prioritize internal funds, starting with the retention of profits, and their decisions are made by selecting sources of financing that involve lower

agency costs, resulting from the sharing of internal information with agents outside the company. In this sense, after profit retention, companies prefer debt issuance to equity issuance, due to the lower information costs they must assume (p. 73).

Aybar et. al. (2001), describes the following regarding the construction of financial structures:

We can start the controversy with the seminal work of Modigliani-Miller (1958), which postulated the irrelevance of capital structure on firm value in perfect capital markets. Having accepted the need to relax the latter condition, in order to bring the premises of the debate closer to the real world, researchers continue to ask themselves what are the reasons for the adoption of a given capital structure, given its undoubted impact on investment decisions (p. 03).

Mascareñas (2008), addresses the problem of capital structure as follows:

Are there weights that minimize the value of the weighted average cost of capital, because if there are, we will have ound a combination of long-term financial sources such that by minimizing the company's cost of capital we will be, at the same time, maximizing its market value, which, let us not forget, is the main objective of every company director. This combination of long-term financial sources is called the optimal capital structure (p.03).

In this case, the author defines an optimal capital structure as a combination of different sources of financing that, in addition to providing resources to the organization, also has the objective of generating a better market value for it. Undoubtedly, this would be an ideal option for any company.

Mongrut et. al (2010), explores the theories of capital structure in Latin American companies from their theoretical origin.

The pioneers in the analysis were Modigliani and Miller (1958 and 1963) and Miller (1977), who clearly marked the differences existing in companies when deciding to incur debt. Their research attempted to explain the various ways in which companies meet their capital demands for investment financing. Such inancing can be achieved by using the

company's own resources or through debt contracted through the financial system (p. 165).

At this point, the authors describe that there are two sources of financing: equity or debt with third parties. This is the basis of the financing hierarchy theory, which is addressed in this paper.

On models that address capital structure quantification, Mongrut et. al. (2010) reviews the following:

The models that have been intensively studied in the current literature are the financial pecking order model (better known as pecking order) and the objective leverage model (known, in turn, as trade off). The former argues that companies choose their sources of financing mainly on the basis of their financial cost, then seek to finance themselves and, as a last resort, issue shares. The objective leverage model argues that companies seek optimal leverage, i.e., that which minimizes the cost of capital (p. 165).

Mongrut et. al. (2010), theoretically reviews the financial hierarchy model as follows:

Under the financial hierarchy model, the hypothesis put forward is that Latin American companies prefer to finance their projects with equity and then with low-risk debt. In order to verify this hypothesis, we consider Frank and Goyal (2000), for whom, according to this theory, the financing gap is matched dollar for dollar by the change in corporate debt. If the hypothesis holds, a direct relationship between the deficit and leverage, a positive relationship between debt and growth and a negative relationship between profitability and debt should be observed, provided that investment is kept fixed (p. 166).

In the authors' review of Latin American companies, they prove that in the case of companies that do not have access to the stock market, they choose equity as a means of financing, having as a second option, low-risk debt, which can be translated into bank loans with lower interest rates. Likewise, it is predicted that leverage levels should have positive effects on the growth of the company and that they should also generate profitability for each monetary unit that has a financial cost.

In a review of the origins of financial hierarchy theories, Rivera (2001) describes what Modigliani & Miller indicate about the construction of financial structures after their initial model.

Subsequently, Miller and Modigliani, (1963), when introducing corporate taxes to their initial model, reversed their preliminary conclusions; they suggested that, since the tax advantage from debt can be fully exploited, the ideal would be to take on as much debt as possible. However, other studies showed that this benefit was only partial because companies have the option of tax savings other than debt and, indeed, the clientele effect produced by market imperfections (p. 33).

In this case, the author identifies that the hypothesis of the benefits of full indebtedness proposed by Miller and Modigliani, (1963), has other edges that should be analyzed, since there are alternatives that allow taking advantage of the benefits of tax deductions. As a result of this reasoning, Miller's irrelevance theory, trade-off theory and the hierarchy of preferences theory emerge.

Regarding the latter, Rivera (2001) concludes the following:

The financial hierarchy theory is opposed to any analytical work aimed at identifying the determinants of the optimal capital structure, since it argues that companies follow a hierarchical sequence of preferences over the different sources of financing, selecting them as the most desirable ones are exhausted. The level of preferences begins with the use of internal funds (self-financing), followed by bank indebtedness, then the issuance of fixed-income securities, with the last alternative being the issuance of own shares (p. 55).

The author's description of the financial hierarchy theory allows us to identify the three main dimensions of the model:

a. Use of internal funds
b. Indebtedness through the financial system
c. Issuance of fixed debt financial instruments
d. Issuance of treasury stock

Wadnipar et. al. (2008), compares two models on how firms' financing structures are determined. On the one

hand, the Static Trade Off theory is based n the fact that companies can maximize their value by reaching a balance between the costs of debt and the benefits generated by the companies. These advantages are: (p. 27)

a. The generation of a tax shield.
b. Decrease in agency costs between managers and shareholders.

The Static Trade Off theory, as reviewed by Wadnipar et. al. (2008), consists of two stages:

The first consists of obtaining the information to reach the optimal debt ratio, and the second refers to a gradual adjustment of the capital structure of companies to reach the target debt ratio (p. 27).

In the case of the Pecking Order Theory, it is based on the fact that companies build their financing structures on the difference between their capacity to generate cash flows and their financial deficit. Wadnipar et. al. (2008). Precisely, the decision hierarchy is structured as follows:

a. Companies prefer internal financing (retained earnings).
b. If external financing is needed, they hoose safe rather than risky debt.
c. They offer shares for sale. This possibility may occur at a very low level.

On the Pecking Order Theory model, Wadnipar et. al. (2008), indicates the following:

When there are no retained earnings to finance projects, companies prefer debt rather than equity financing due to the costs of the asymmetric information dilemma. Myers and Majluf (1984) stated that when outside investors do not have all the information about the company, the value of the shares in the market may be lower than the real value. Prospective investors have the belief that management is overvaluing the stock price and, therefore, adjust the stock price below the true price. If these conditions are accepted, management and the old shareholders will face the problems caused by the underinvestment, while the new shareholders will inherit the financial health of the company (p. 28).

Also with respect to the Pecking Order Theory, Gómez (2008), in his theoretical review, describes the following:

It has its origins in the work of Myers (1977) and Myers and Majluf (1984), and argues that companies have an order of priority when deciding to finance an investment. Myers and Majluf (1984) describe the preference for financing as follows:

Gómez's (2008) review describes the hierarchy of financing preferences:

First, firms prefer internal financing. Retained earnings are the first of the sources of financing preferred by managers, since they are not influenced by information asymmetry, lack explicit cost, and allow a greater margin of discretion as to their use. In second order, they prefer debt issuance and, finally, they prefer capital increases. With respect to external financing, equity issuance is subject to a higher degree of adverse selection than debt, with external investors usually considering equity as the riskiest security and, therefore, with a higher required rate of return (p. 03).

Regarding Behavioral Heuristics

On the alterations of rational behavior, Navarro (2010), describes what it means to reason heuristically:

The concept of 'heuristics' has been used in different disciplines and currents, so there is a remarkable plurality of perspectives to answer questions such as what are the cognitive functions of heuristics, when they are used for equivalent purposes in different knowledge domains, how to know to what extent they guide the course of action in the same way as our provision of knowledge in a specific environment, among others. The semantic or conceptual pluralism of the term 'heuristic' is due not only to the uses it acquires but also to the different types of evidence required by the process to which it refers (p. 124).

With this concept, it is understood that heuristics, as a definition, can be applied in various fields of science, although they do find a point of intersection in that it is a rule that is applied involuntarily and that contributes to the formulation and understanding of a problem in an alternative way. Sometimes it simplifies it so that it can be solved in a more agile and automatic way, moving away from the expected rationality.

On the importance of heuristics, Navarro (2010), indicates the following:

Heuristics depend on the intuitive system, that is why they are fast, do not require a great cognitive effort, are somewhat inaccessible to consciousness and involve a parallel process, often related to emotions as of Haidt's (2001) publication. Now, if heuristics are a type of strategy related to the natural ability to evaluate or judge in order to produce an estimate or a prediction, it seems relevant to ask how we come to identify them (p. 125).

With what the author describes about heuristics, the concept that, through this variable, it is possible to understand why decisions move away from the expected rationality, from a slower lucubration due to the same process of information, and on the contrary are transformed into more agile processes, closely linked to emotions and previous beliefs, is consolidated. Therefore, it is necessary to review the decision-making process from a seminal and formal perspective.

Precisely, on decision theory, Scarano & Marqués (2014), review the following:

Decision theory, usually called rationality theory, is a basic theory of microeconomics and, therefore, of standard economics. It can be considered a theory of action because it explains why an economic agent performs an action, which, properly generalized to other fields, also explains non-economic actions. The results of the testing of decision theory, especially experimental, led to various reformulations to absorb anomalies. One of the main factors introduced for that purpose was emotion and feelings in the decision-making process. These factors usually appear opposing or disruptive to rationality (p. 08).

The authors understand that decision theory is initially closely connected to rationality. Through the analysis of this process, it is possible to understand how an action can generate decisions in other economic agents, which are not necessarily to be found within the original model. Therefore, when trying to fully understand how and why certain decisions are made, the analysis of anomalies begins and this reasoning is incorporated to subjective variables such as anchoring and adjustment, overconfidence, representativeness,

prospective theory, among other variables that contribute to a more complex analysis of this process.

Knowing the importance of behavioral heuristics that are present in decision making, Becerra et. al. (2012), performs an analysis on the work of Kahneman & Tversky (1979) and describes the following on behavioral biases and heuristics:

Behavioral finance was born as a result of a work carried out by Daniel Kahneman and Amos Tversky called "Prospect Theory" (1979). The work was based on the Allais Paradox, a theory developed by Maurice Allais in 1953. The psychologists noticed that the individual did not behave that way according to what they had studied during their academic training. Together they challenged classical finance by applying psychology and sociology to financial decision-making by postulating a new utility curve: an S-shaped value function. People do not follow Bayesian reasoning in every situation they are presented with; in the vast majority of cases, they are victims of biases and heuristics that distance man from the "demi-god" that classical finance assumes (p. 05).

Therefore, the presence of behavioral finance becomes not a substitute for classical or neoclassical finance, but rather an important complement to understand why people do not follow Bayesian reasoning, but rather behave and make decisions that move away from the boundaries of probabilities, bringing the variable "behaviorality" into the equation.

An author who has been very important in the development of behavioral finance is Herbert Simon. Precisely about this academic, Alcalá (2014), reviews what Simon (1962) contributes on rationality and how decisions are made under the scope of classical finance:

If we want to analyze the real decision process in man, we must assume that this is neither too rational, a position defended by classical economists with the famous theory of "perfect" rationality, which assumes, under a decision situation, that the individual possesses all the information and therefore his analysis is also optimal, the probability estimates are easily achievable, the individual has at his disposal information on all possible alternatives and has a complete and consistent system of preferences that

allows him to make a perfect analysis of all of them; It does not present difficulties or limits in the mathematical calculations that must be made to determine which is the best; therefore, it guarantees that the chosen alternative is a global optimum, but it is also not affected by its environment (p. 10).

Economists have tried to explain the decision-making process under the instrumental rationality approach, which consists of logically and rationally choosing the most convenient path to achieve, for example, higher profits or lower costs. This model is also called "consequentialist", since the rationality of the action is evaluated, among other things, by its results. It is the basis for the construction of the theory of expected utility, based on the laws of probability, but which encounters the anomalies inherent to behaviorality that make this "ideal course of action" sometimes fail to materialize due to the behavioral variable.

Under the same traditional approach and how the role of feelings are involved in classical finance decisions, Lucey & Dowling (2005), perform the following analysis:

The traditional perspective of how people make decisions involving conditions of risk and uncertainty assumes what Loewenstein et al. (2001) describe as a 'consequentialist perspective'. In this traditional model, the decision-maker is assumed to quantitatively weigh the costs and benefits of all possible outcomes and choose the outcome with the best risk-benefit trade-off. This perspective can be seen in the traditional finance theories of Markowitz porfolio theory (Markowitz, 1952) and the Capital Asset Pricing Model (e.g. Sharpe, 1964) (p. 213).

The authors describe the common characteristics of the decision-making process that is assumed to be absolutely rational. Under this traditional model, people, assuming that they have full access to information, evaluate probable costs and returns, therefore, they can also project future benefits and make decisions about them. In the case of the postulated by the theory of portfolio efficiency (Markowitz, 1952), it is also developed under the same postulate based on probability and measured by mathematical hope.

A novel approach is the inclusion of the behavioral variable in the classic decisions of finance, for this reason, Lucey & Dowling (2005), perform the following analysis on the appearance of other variables associated with emotions:

An advance on the traditional perspective has been to include the impact of anticipated emotions on decision-making. Anticipated emotions are emotions that are expected to be experienced by the decision-maker given a certain outcome. For example, it might be assumed that the decision-maker is influenced by the effect of emotions such as regret and disappointment if they experience a negative outcome (this can be seen in the model of regret developed by Loomes and Sugden, 1982). This perspective has been applied in finance; for example, the myopic loss aversion theory of Benartzi and Thaler (1995) uses the implication of the emotional reaction of investors to losses on their investments to explain the equity risk premium puzzle identified by Mehra and Prescott (1985) (p. 213).

For example, is it logical to suppose that a person can alter his decision if he is exposed to emotions such as sadness, disappointment, regret, etc., according to the loss aversion theory postulated by Figure 1.

Relationship between affection and decisions Benartzi and Thaler (1995), these variables do have an influence on the final decision. In the experiment conducted by Slovic & Alhakami (1994), Figure 01, evidence was obtained that behavioral variables can affect the perceived benefit and risk of a particular scenario. It was concluded that, in the presence of pleasant feelings, the level of perceived risk decreases and the benefit is maximized. On the other hand, in the presence of less pleasant feelings, the response was high perceived risk and low benefit.

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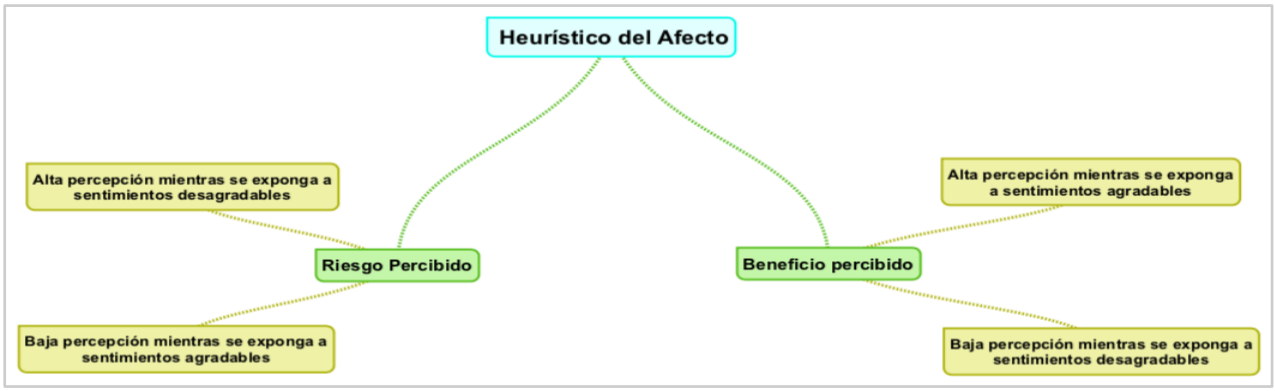
Figure 1.

Relationship between affection and decisions



Note: *The figure shows the theoretical relationship between the variables that describe the affect heur*

istic. Source: Adapted from Slovic (1994)

With respect to behavioral finance, Roig (nd) develops the following theoretical analysis:

According to Shleifer (2000), the theory of behavioral finance is based on wo main foundations:

Arbitrage onstraints and investor sentiment. In this sense, this school investigates why, in the markets, it is observed how investors systematically make different decisions from those they would make if they were rational investors. Because such irrational decisions are not isolated and are repeated over time - systematic - they have direct effects on both prices and returns. On the other hand, this school also investigates how investors arbitrage through the mentioned inefficiencies, i.e., investors apply active strategies to take advantage of market inefficiencies (p. 31).

What the author presents is fundamentally a critique of rationality and the desire to maximize profits through the analysis of symmetric information that is generated in an efficient market and that is correctly regulated in the case of distortions in the price of assets. On the contrary, from behavioralism, it is possible to understand why people do not decide within the framework of rationality and

explains how these economic agents take advantage of market distortions for their own benefit. This contradicts the "efficient market" concept of classical finance.

It is important to mention that, regarding the hypothesis of efficient markets, Hernández (2009) analyzes what Fama (1998) indicates about the "efficient market" hypothesis:

The observable anomalies in markets are consistent with the market efficiency hypothesis and underplay the importance of the conclusions and methodologies followed by behavioral researchers. This author proposes that anomalies are normal possibilities that can generate either upward or downward reactions to new information. However, in the confused days before the rise of modern finance, a select group of respected economists, such as Adam Smith, Irving Fisher, John Maynard Keynes and Harry Markowitz, thought that individual psychology affected prices (Hirshleifer, 2001) (p. 10).

In this regard, Fama (2009), although defending the efficient market hypothesis, argues that the overvaluation or undervaluation of assets are normal possibilities, which are produced by the symmetric disposition of the information handled by economic agents, a basic postulate of the efficient market. However, this statement does not seem to be compatible with the behavior of human beings who tend to build expectations based on a series of events that they can mistakenly interpret as trends that lead them to non-rational decisions. Such information management is what is measured through the "framing" dimension.

In the paper prepared by Garay (2015), the main characteristics of behaviorality in financial decisions are reviewed:

Kahneman and Tversky observed that people's preferences are inconsistent when the same options are presented in different ways, which helps explain irrational economic behavior. For example, when people go to a distant store to get a discount on a cheap item, but do not do so for the same discount on something expensive. They also observed that the reaction to loss is much more intense than to gain, which gave rise to the concept of loss aversion. Less importance is attached to merely probable outcomes

than to certain ones. This explains why a gambler on a losing streak refuses to accept the loss and continues to gamble in the hope of recovering his losses (p. 12).

In essence, what the Nobel Prize winners found is that decisions are not made under absolute rationality, because each person may be influenced by a set of behavioral heuristics that lead to a different analysis of reality that may ultimately generate an error in the final decision.

On such opposing approaches, Kapoor & Prosad (2017), conducted a review on classical and behavioral theories of finance:

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Table 1.

Classical Theories of Finance

Author	Year	Finding
John Stuart Mill	1844	Introduced the concept of economic man
Bernoulli	1738, 1954	
Von Neumann and Morgenstern	1944	
Harry Markowitz	1952	Markowitz portfolio theory
Treynor, Sharpe and Lintner	1962, 1964, 1965	
Jan Mossin	1966	
Eugene Fama	1970	Market efficiency hypothesis

Nota. La tabla presenta a los principales autores y hallazgos respecto a los fundamentos de las finanzas. Fuente: Kapoor & Prosad (2017).

Tabla 1.

Teorías sobre las Finanzas Conductuales

Autor	Año	Teoría
Herbert Simon	1955	Models of bounded rationality
Festinger, Riecken and Schachter	1956	Theory of cognitive dissonance
Tversky and Kahneman	1973, 74	Introduced heuristic biases: availability, representativeness, anchoring and adjustment
Kahneman and Tversky	1979	The prospect theory, introduced loss aversion bias
Tversky and Kahneman	1981	Introduced Framing Bias
Richard Thaler	1985	Introduced mental accounting bias
De Bont and Thaler	1985	Theory of overreaction in stock markets
Barberis, Schiefer and Vishny	1998	Investor sentiment model for underreaction and overreaction of stock prices
Meir Statman	1999	Behavioural asset pricing theory and behavioural portfolio theory
Andrei Shleifer	2000	Linkage of behavioural finance with efficient market hypothesis to find that stock markets are inefficient
Barberis, Huang and Santos	2001	Incorporation of prospect theory in asset prices
Grinblatt and Keloharju	2001	Role of behavioural factors in determining trading behaviour
Hubert Fromlet	2001	Importance of behavioural finance. Emphasis on departure from 'homo economicus' or traditional paradigm to more realistic paradigm
Barberis and Thaler	2003	Survey of Behavioural Finance
Coval and Shumway	2006	Effect of behavioural biases on stock prices. The price reversal for biased investors is quicker than unbiased investors
Avanidhar Subrahmanyam	2008	Normative implications of behavioural finance on individual investors and CEO's
Richard Thaler	2008	Impact of mental accounting on consumer choice behaviour
Robert Bloomfield	2010	Compares the behavioural and traditional finance approach in explaining market inefficiencies
Parag Parikh	2011	Practical implications of behavioural finance and investor sentiments in value investing
Uzar and Akkaya	2013	Explores the evolution of behavioural finance from traditional finance

Nota. La tabla presenta a los autores de las principales teorías de las finanzas. Fuente: Kapoor & Prosad (2017).

According to Barberis & Thaler (2003), there are several biases that are within the field of psychology, but are que applicable to understanding how people make decisions in a setting that is not ideally rational.

Table 3.

Behavioral Heuristics

Heuristic	Description
Overconfidence	Focused on showing that people's judgment is characterized by overconfidence.
Optimism and illusions	This type of bias tends to affect people's planning horizons, allocating less (optimistic) time than some tasks actually do.
Representativeness	This type of bias has to do with the way people construct stereotypes and labels to make decisions through heuristics. People form opinions that are not necessarily correct about certain aspects or characteristics that in combination further distort the interpretation of reality.
Conservationism	Apparently the problem of conservatism and representativeness are in conflict in different senses. However, it is possible to infer that the two effects are not mutually exclusive, apparently if the data sample is representative of some model, then people overestimate the data, whereas, if the data is not representative of any model, people react skeptically to the data and rely on their prior knowledge.
Perseverance of beliefs	This bias is explained by two ways, the first is that people are negligent in recruiting evidence that might contradict their hypothesis, that is, they lack objectivity in the data collection and analysis stage. The second is that, although they may find evidence contrary to their hypothesis, they will treat this evidence with great skepticism, invalidating it.
Anchors	This shows that the anchor bias can significantly skew perception and opinion formation, clearly this can have an important effect on estimating discount rates, dividend growth rates and hence the value of stock assets by taking as anchors the general market sentiment at a given point in time.
Availability bias	In the research of Kahneman and Tversky 1974, it is shown that when people calculate the probability of an event, they look for relevant information in their memory, if there is relevant information, especially if it has had a personal effect on the subject, this relevant fact would have a greater weighting when estimating the probability.

Prospect theory	Describes the alternative selection process that individuals go through, the first phase is the editing of information, this phase constitutes the initial phase, during which the individual organizes and reformulates opinions in order to simplify the alternative evaluation process. The second phase is the evaluation phase, during which the edited, reordered and simplified data are evaluated and the perspective that contributes the most value to the individual is selected.
Aversion to ambiguity	These results prove that agents do not take relationships that comply with rationality assumptions, specifically with the consistency principle, suggesting that their selection process is affected when they do not have complete information (which is what usually happens in reality).
Rationality and wealth levels	Finally, it shows that investors' expectations do translate into decisions about the elements within the portfolio, which means that expectations are actually useful in understanding pricing.

Nota. La tabla presenta la definición de las principales variables que se presentan dentro de las finanzas conductuales. Fuente: Jordán (2013).

CONCLUSIONS

Decisions made by economic agents start from the assumption of absolute rationality, but at the moment of final deliberation, unplanned factors such as overconfidence, optimism, the framing effect, prospective theory, and anchoring and adjustment also intervene as behavioral phenomena that escape from the parameters established for rational decisions. These factors, the behavioral ones, can induce people to build financing structures that do not fit the needs of their companies. Such determinations may result in an over-leveraged company or, at the other extreme, the decision to do without external funds, forgoing tax benefits and lower equity risk.

With respect to approaches tocapital structure, various models have been developed (asymmetric information, based on agency costs, bankruptcy costs, forms of organization and transaction costs). In the case of Asymmetric Information models, the financial structure built by companies can be confusing for the investor, however, the market reacts as this structure is altered in its composition.

Likewise, if he or the majority contributors who control the company by capitalizing profits reflect confidence towards the market, but also, depending on the resources at his disposal, he may alter the diversification of his investment portfolio.

Therefore, the reason why the market may react positively if the shareholder favors his own contribution is because a greater effort is expected precisely because of the little variety of investment and the risk that he himself must face by having all his "eggs in one basket". Other models based on asymmetric information, such as the Pecking Order Theory, postulate that there is an order of predilection with respect to the composition of corporate debt. This model states that organizations prefer internal financing, the incorporation of debt to liabilities and only if necessary, the issuance of equity capital.

It must be said that they are inherent to people and are inevitably accompanied by uncertainty, i.e., the low probability of knowing the final result with certainty.

In this regard, companies rely on several tools such as Bayesian reasoning and expected value reasoning, providing a set of decision options based on their probabilities of occurrence, always under the criterion of absolute rationality. In this regard, behavioral scholars argue that such theoretically rational decisions are affected by heuristics and biases that cause the final product not to obey the rationality sought.

This process can be quantitative or qualitative, which can take as a tool the expertise of the manager, the judgment of experts that are important if the actors have really accumulated the necessary experience to reach a good decision.

Behavioral finance has been responsible for identifying and studying a series of behaviors not associated with rationality.

For example, Morales (2008), in his research on behaviorality in the real estate market, analyzes the rise in prices in the

U.S. real estate market, arguing that this "bubble" has as a factor a non-perfect rationality. The author calls this "irrational exuberance". This is because people have the capacity to apply complex reasoning. It is here where the "shortcuts" are produced that generate systematic errors in the decisions that can be taken. Thus, behavioral finance argues that even markets, symmetrical and perfect, can make mistakes.

The presence of such conditions produces a biased valuation of the

investment options under analysis. This significant and systematic bias is contrary to the Efficient Market Hypothesis. This assumes that the current condition of the markets is the result of absolutely symmetric information, and that this information is available to all the actors, therefore, there are no information and transaction costs. Here it is pertinent to comment on the Efficient Market Hypothesis, because it does not assume that investors are rational, but maintains that the market as a whole is rational.

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