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Subjective Probability and the Intertemporal Dimension of Probability to Correct the Misrelation Between Risk and Return of a Financial Asset as Perceived by Investors. Extension of Prospect Theory to Better Describe Risk Aversion

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Abstract : From a theoretical point of view, the relationship between the risk associated with an investment and the expected value are directly proportional, in the sense that the market allows a greater result to those who are willing to take a greater risk. However, empirical evidence proves that this relationship is distorted in the minds of investors and is perceived exactly the opposite. To deepen and understand the discrepancy between the actual actions of the investor and the theoretical predictions, this paper analyzes the essential parameters used for the valuation of financial assets with greater attention to two elements: probability and the passage of time. Although these may seem at first glance to be two distinct elements, they are closely related. In particular, the error in the theoretical description of the relationship between risk and return lies in the failure to consider the impatience that is generated in the decision-maker when events that have not yet happened occur in the decision-making context. In this context, probability loses its objective meaning and in relation to the psychological aspects of the investor, it can only be understood as the degree of confidence that the investor has in the occurrence or non-occurrence of an event. Moreover, the concept of objective probability does not consider the inter-temporality that characterizes financial activities and does not consider the condition of limited cognitive capacity of the decision maker. Cognitive psychology has made it possible to understand that the mind acts with a compromise between quality and effort when faced with very complex choices. To evaluate an event that has not yet happened, it is necessary to imagine that it happens in your head. This projection into the future requires a cognitive effort and is what differentiates choices under conditions of risk and choices under conditions of uncertainty. In fact, since the receipt of the outcome in choices under risk conditions is imminent, the mechanism of self-projection into the future is not necessary to imagine the consequence of the choice and the decision makers dwell on the objective analysis of possibilities. Financial activities, on the other hand, develop over time and the objective probability is too static to consider the anticipatory emotions that the self-projection mechanism generates in the investor. Assuming that uncertainty is inherent in valuations of events that have not yet occurred, the focus must shift from risk management to uncertainty management. Only in this way the intertemporal dimension of the decision-making environment and the haste generated by the financial market can be cautioned and considered. The work considers an extension of the prospectus theory with the temporal component with the aim of providing a description of the attitude towards risk with respect to the passage of time.

Keywords : impatience, risk aversion, subjective probability, uncertainty
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