Proceedings of the 7th International Conference on Economic Management and Green Development
DOI: 10.54254/2754-1169/29/20231376

Limited Rationality in a Cognitive Framework: Behavioral Economic Analysis Based on Consumption and Investment Phenomena

Sihao Hu[1,a,*]

[1]*Faculty of Business and Management, Beijing Normal University-Hong Kong Baptist University United International College, Zhuhai Guangdong 519000, China*
a. r130001031@mail.uic.edu.cn
**corresponding author*

Abstract: Consumption and investment are essential decision-making processes in the daily life of people, as well as key indicators of social and national economic progress and regulation. The irrational behaviors and anomalies that emerge in the market nowadays have broken through the conventional assumptions and interpretations of rational economics, therefore, clarifying the underlying logic and fundamental principles of these phenomena is of considerable reference value for the judgments people make in manufacturing and living. Drawing on the framing effect theory of behavioral economics, this study will unpack the potential impact factors rooted in behavioral decision making by incorporating the perspectives of self-framing, sentiment, intertemporal decision making and risky decision making. According to the core findings of the framing effect, the study will progressively expand to the self-framing description framework and specific emotion elicitation constructed on its basis, and then integrate the promotional framing, intertemporal decision-making perspectives to refine the comprehensive analysis of irrational behavior.

Keywords: framing effect, sentiment, irrationality, intertemporal decision making

1. Introduction

The increasing ubiquity of mass media is disseminating vast amounts of information as well as noise, while at the same time fueling greater irrational consumption and investment frenzy [1]. This change in narrative and velocity is subtly permeating the framework of thinking and behavioral patterns. In the contemporary marketing arena, beyond the use value of the product inherently, brands are trafficking in the purchase experience and emotional benefits behind goods. The emergence of sales patterns such as packaging with varying textures and forms, limited release times and quantities, and blind boxes has introduced additional variables into consumer decisions. Analogously, in the investment field of stock market, market anomalies are presented as a short-term strong oscillation by provoking the psychology of investors and guiding trading behavior. In contrast to rational choices, "emotional trading" in the market value management of listed companies and short-wave strategies of the fund industry is becoming an increasingly relevant consideration. The economic phenomena that occur in the real market are beyond the traditional rational economic theories, so it is needed to complement and extend the existing theories by integrating behavioral economics with psychological

DOI: 10.54254/2754-1169/29/20231376

perspectives. Clarifying the impact of the framing effect can serve as a powerful support for risk avoidance and prudent decision-making, not only in relation to the economic situation of individuals, but also in regard to the prosperity and development of the country. This essay takes the framing effect as the cornerstone to investigate the irrational factors in consumption and investment behavior by associating the dimensions of self-framing, sentiment, intertemporal decision making.

2. Literature Review

When humans perceive the physical world, information is not objectively and integrally transcribed into consciousness; the world one observes depends on one's construction of reality, filtered by selective attention. If the brain has not predetermined the likelihood of an object appearing, that object will be blocked from perception. The perception of reality in the human brain is shaped by anticipation, and this perceptual fixation or anticipatory tendency is present in the basic mode of operation of the brain. Initiation of arousal or activation of certain specific associations of memory induces priming effects even at subthreshold presentations [2].

Based on existing studies on priming effects, the sequencing and wording of the questions and the answer options all contribute to some extent to the bias in the results, in which framing plays a role. With the effect of framing, people may respond differently to questions of the identical nature [3]. The concept of "framing effect" was first demonstrated in an experiment by [4]. This study found that the description in the "gain" or "loss" frame of the same decision-making problem influences or even reverses the decision maker's risk preferences. Risk aversion and selection of the certainty solution became the favored choice when using the gain frame description, whereas the appetite for risk seeking and gambling solutions emerged when using the loss frame description. Extended studies of framing effects cover a wide range of topics, such as those by Levin et al., which reveal that people actively encode and process information to form self-frames in decision making [5]. Furthermore, delayed framing effects and accelerated framing effects associated with intertemporal and risky decisions have also been introduced based on the discounting utility model.

In the subsequent study, the validity of the framing effect was also verified in the context of life saving, money problems, and consumption decisions. Existing research has pioneered and expanded the potential parameters affecting human decision-making processes from a multidimensional perspective based on real-life scenarios, and has also constructed models to effectively portray these variables. This essay will analyze the irrational decisions related to the framing effect in daily consumption and investment based on modern research.

3. Analytical Framework

3.1. Self-framing Effect

Wang revealed that people frame their self-representations in reaction to the emotions of the predicted event [6]. When an anticipated negative event occurred, the self-representations of the subjects showed relatively positive expressions of emotion, and this self-frame exhibited a psychological readiness function at this time. Relevant research has also found that this self-frame with a mental readiness function affects decision makers in a consistent pattern with traditional frameworks: in a positive self-frame, decision makers are more inclined to avoid risk, whereas in a negative self-frame, decision makers are likely to seek risk [7]. In comparison to positive emotions, subjects in intertemporal decision tasks have increased forward time discounting, i.e., show a preference for short-term gains, when negative emotions are elicited. Nevertheless, the study of negative emotions is not generalized and different forms of activation of negative emotions, such as loneliness and anger, exhibit distinct characteristics.

DOI: 10.54254/2754-1169/29/20231376

When implemented into the scenario in which the decision occurs, the inspiration of the decision maker's emotions leads to diverse tendencies, and the role of such self-framed emotions exerts itself more dramatically than in the execution of rational strategies [5]. The time discount is raised abruptly, i.e., when the forward discount rate is elevated in favor of short-term immediate gains and losses. The moment when consumption and investment are completed as an instantaneous action can be seen as a choice of current profit and loss from the perspective of intertemporal decision making. In modern marketing, the emergence of time-limited goods has altered the inherent sales model. This format can lead to increased consumer preference for near-term gains and losses, by creating a sense of time anxiety and tension to modify delayed discounts and ultimately to purchase.

3.2. Framing Effect in Specific Emotional State

In general, negative emotions increase the discount rate of long-term value in intertemporal decision making [8]. The delayed discount rate was substantially higher for subjects in the emotion-induced group than for subjects in the control group without emotion elicitation, indicating that negative emotions reduced subjects' estimates of long-term value and thus manifested a tendency to be short-sighted regarding value. In contrast to the positive and neutral emotion initiation conditions, in the case of negative emotions, individuals are more favorable to choose less valuable instant rewards and forego more valuable deferred rewards.

Studies have suggested that better self-control, endurance, and disposition toward the future were demonstrated in subjects who were induced positive emotions, and that subjects who imagined positive emotional events presented a propensity to choose delayed rewards compared to those who visualized negative emotional experiences [9]. Under the influence of pleasure, the cognitive performance, ability to make judgments as well as the attention of decision makers may be deviated. Individuals induced with pleasurable emotions may be more concerned with the value of future outcomes and relative neglect of temporal distance, thus leading to a decline in the rate of delayed discounting. Sadness, on the other hand, triggers subjects to lose self-control and require more instant reassurance [10].

3.2.1. Anger and Fear

Subjects who experienced fearful emotions were more likely to choose smaller immediate rewards in order to minimize uncertainty. Whereas subjects who experienced anger were more probably to prefer larger delayed rewards [11]. Not only that, but high levels of anger motivate individuals to engage in more risk-seeking behaviors relative to being temporarily in a low anger state.

Fearful emotions are avoidance-motivated emotions inclined to avoid objects or contexts that are enmeshed in tension, whereas anger emotions are convergent motivational emotions that arise when action toward a desired goal is thwarted. It is suggested that the high sense of certainty and control motivated by anger and pleasure enhances individuals' predisposition to delay gratification when making decisions, and also stimulates individuals' appetite for risk [12].

3.2.2. Sense of Loneliness and Uncertainty

The heightened loneliness in the Internet age, a gap that has been interpreted as a subjective isolation between what individuals expect from social connection and what they actually are. Out of matching their loneliness status, people with high loneliness prefer minority-endorsed products, while those with low loneliness favor majority-endorsed products. Yet individuals with high loneliness will also cater to the masses to acquire popular goods that appear in public to establish social connections.

Perceived control deficit refers to an individual's perceived lack of influence and control over the occurrence of external events, and the higher the individual's sense of isolation the more severe the

DOI: 10.54254/2754-1169/29/20231376

perceived control deficit. In a market with simultaneous positive and negative information, individuals with a lack of control are associated with less stock-like investment choices due to an overestimation of the likelihood of negative information. Nevertheless, the illusion of high control leads individuals to place more bets in gambling games and the likelihood of making a draw is enhanced when individuals perceive a sense of control over the draw event.

Indeed, the uncertainty and ambiguity of decision information may trigger risk-averse consumption preferences. This potential framing effect occurs when the shape and material of a product's packaging changes, as consumers may be more likely to purchase due to rectangular or transparent packaging, or they may perceive it as having more capacity due to its irregular shape [13]. The frenzied buying induced by the blind box sales model acts on consumers' judgments of the value attributes of the goods from the change in their packaging.

3.2.3. Investor Sentiment

Investor sentiment was first introduced as a variable in the stock price determination model [14]. Investor sentiment has become an essential factor affecting stock market returns and volatility with the potential of leading to systematic risk in the equilibrium price of financial assets due to the mutual impact of investor sentiment where arbitrageurs will be unable to overcome mispricing resulting from irrational behavior. This investment sentiment has an asymmetric relationship, as investors' optimism reduces return volatility compared to pessimism, while bullish sentiment has a greater impact on the stock market than bearish sentiments. Additionally, according to Stambaugh et al., high-sentiment leads to a much greater overvaluation of stock prices than low-sentiment, owing to the presence of explicit or implicit short-selling restrictions [15]. Table 1 shows the effects of relevant variables based on existing experimental findings.

Table 1: Comparison of the effect of relevant variable based on existing experimental findings.

Variable	Possible impact on decision-making
Description of the problem framework	
Acquisition-related descriptions	Risk-averse deterministic choices
Loss-related descriptions	Risk-seeking gambling preferences
Description of the self-frame	
Positive self-description	Risk avoidance
Negative self-description	Risk seeking
Decision making emotion	
Mostly positive emotions and arousal of positive events	Preference for long-term gains and losses
Most negative emotions and arousal of negative events	Preference for short-term gains and losses
Pleasure	Preference for long-term gains and losses
Sadness	Preference for short-term gains and losses
High sense of self-control and certainty	Risk seeking
Low sense of self-control and certainty	Risk avoidance
High loneliness	minority-endorsed products
Low loneliness	majority-endorsed products

DOI: 10.54254/2754-1169/29/20231376

Table 1: (continued).

Anger	Preference for risk-seeking and long-term gains and losses
Fear	Preference for risk-averse and short-term gains and losses
Gratitude	Preference for long-term gains and losses
Happiness	Preference for long-term gains and losses
Market sentiment	
Bullish sentiment (optimism)	Greater impact, less return volatility
Bearish sentiment (pessimistic)	less return volatility

3.3. Framing Effects in Intertemporal Decision-making

Intertemporal decision making refers to the decision of trade-offs between benefits and costs that occur in separate periods. Existing research suggests that people place greater weight on current and near-term gains and losses while placing less weight on future gains and losses in intertemporal decision making, which is also known as time discounting. The study of intertemporal decision making in economics is based on the assumption of "infinite rationality" in decision making behavior, and mathematical models have been developed to characterize the discount preferences of people in intertemporal decision making, as represented by the exponential discount model. In the subsequent studies on intertemporal decision making, emotion-based theories and trade-off models supplemented the original rationality assumptions based on the consideration of more integrated internal and external factors introduced in practice.

Emotion-based theory states that choices that diminish aversive activation states increase transiently and irregularly dramatically, with temporal and physical proximity that will eventually lead to a preference for the present choice. Time delays and outcome differences are compared as two central variables in trade-off models, with salience of outcome variances in the comparison leading to more substantial gains forward, while salience of time delays directing to more instantaneous choices [16].

The irrational behavior of an individual may be caused due to the emotional state of the current situation, as individuals in a depressed state tend to eat more food or smoke more cigarettes in the moment. Whereas the emergence of feelings of gratitude and enhanced well-being may lead to greater patience and less impulsive consumption [17]. Discoveries in neuroeconomics support the interpretation of the multiple selves model in intertemporal decision making, where the limbic system corresponds to the immediate need satisfaction and implementation of the self, while the neocortex is responsible for long-term arrangement waiting.

4. Conclusion

In a nutshell, focusing on the prominent variables in the decision-making scenarios of consumption and investment, irrational consumption sprees in real markets and market sentiment in stock markets are first captured, followed by a review of the theoretical foundations and development trends of the framework effect pair by reviewing classic cases with proven validity. While the potential impact of the framing effect is progressively rendered in terms of dimensions such as descriptions of the self, emotions in decision making and models of intertemporal decision making, thereby providing a comprehension of the absence of rationality in real trading scenarios and decision.

DOI: 10.54254/2754-1169/29/20231376

The self-framing has a prominent role in impacting intertemporal decision making, with varying psychological traits and cultural contexts potentially shaping intertemporal decision making. In studies of the interaction between framing effects and emotions, more negative, unstable sentiments and information will likely provoke the tendency of individuals toward immediate realization, while positive, high-certainty feelings may have the reverse effect in similar decision making. The exploration of framing effects in behavioral economics is not a novelty or a reversal of traditional rational economics, but rather a way to introduce more reasonable assumptions to existing economic constructions of reality.

References

[1] *Shiller R.J. Narrative economics. Princeton: Princeton University Press, 2020.*

[2] *Ibáñez A, Hurtado E, Lobos A, et al. Subliminal presentation of other faces (but not own face) primes behavioral and evoked cortical processing of empathy for pain. Brain Research, 2011, 1398: 72–85.*

[3] *Krosnick J.A, Schuman H. Attitude intensity, importance, and certainty and susceptibility to response effects. Journal of Personality and Social Psychology, 1988, 54: 940–952.*

[4] *Tversky A, Kahneman D. The framing of decisions and the psychology of choice. Science, 1981, 211: 453–458.*

[5] *Levin I.P, Gaeth G.J, Schreiber J, et al. A new look at framing effects: Distribution of effect sizes, individual differences, and independence of types of effects. Organizational Behavior and Human Decision Processes, 2002, 88: 411–429.*

[6] *Wang X.T. Self-framing of risky choice. Journal of Behavioral Decision Making, 2003, 17(1): 1–16.*

[7] *McElroy T, Seta J.J, Waring D.A. Reflections of the self: How self-esteem determines decision framing and increases risk taking. Journal of Behavioral Decision Making, 2007, 20: 223–240.*

[8] *Ifcher J, Zarghamee H. Happiness and time preference: The effect of positive affect in a random-assignment experiment. American Economic Review, 2011, 101: 3109–3129.*

[9] *Pyone J.S, Isen A.M. Positive affect, intertemporal choice, and levels of thinking: Increasing consumers' willingness to wait. Journal of Marketing Research, 2011: 48, 532–543.*

[10] *Lerner J.S, Li Y, Weber E.U. The financial costs of sadness. Psychological Science, 2012, 24: 72–79.*

[11] *Wiltermuth S.S, Tiedens L.Z. Incidental anger and the desire to evaluate. Organizational Behavior and Human Decision Processes, 2011, 116: 55–65.*

[12] *Druckman J.N, McDermott R. Emotion and the framing of risky choice. Political Behavior, 2008, 30: 297–321.*

[13] *Raghubir P, Greenleaf E.A. Ratios in Proportion: What should the shape of the package be? Journal of Marketing, 2006, 70(2): 95–107.*

[14] *DeLong J.B, Shleifer A, Summers L.H, et al. Positive feedback investment strategies and destabilizing rational speculation. The Journal of Finance,1990, 45(2): 379–395.*

[15] *Stambaugh R.F, Yu J, Yuan Y. The short of it: Investor sentiment and anomalies. Journal of Financial Economics, 2012, 104(2): 288–302.*

[16] *Scholten M, Read D, Sanborn A. Weighing outcomes by time or against time? Evaluation rules in intertemporal choice. Cognitive Science, 2014, 38(3): 399–438.*

[17] *DeSteno D, Li Y, Dickens L, et al. Gratitude: A tool for reducing economic impatience. Psychological Science, 2014, 25: 1262–1267.*