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Loss Aversion: Exploring the Influence of the Cognitive Bias on Decision-Making

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Abstract: Daniel Kahneman and Amos Tversky suggest that losses can be twice as powerful as gains psychologically. This paper aims to discuss the concept of loss aversion, exploring the influence of loss aversion on decision-making, and why we must deepen research about loss aversion. In this paper we discussed three application of loss aversion: In the Counter-Strike skin market, since the ownership between player and skin, loss aversion influence players to miss the best chance to gain profit, we pick butterfly knife as an example to explain this; In gambling, players keep trying to recover the original capital if they lose their first game, they may have a behavior about continuing to gamble called "chasing losses"; In the stock market, some investors sell the stock out too early since loss aversion, and investors are more sensitive to losses than gain. Experimental studies provide data for supporting the effects of loss aversion on decision-making.

Keywords: loss aversion, ownership, chasing losses, sensitive

1. Introduction

Loss aversion is a cognitive bias suggested by Daniel Kahneman and Amos Tversky, which makes a huge impact on individual decision-making. For example, there are two options for people to choose in a game. The first option is to receive $50 with certainty, and the second choice is that players have a 50% chance to win $100 and a 50% chance to win nothing. From an objective viewpoint, both options have an expected value of $50. Formally speaking, an individual is loss averse if she or he dislikes symmetric 50-50 bets and, moreover, the aversiveness to such bets increases with the absolute size of the stakes Loss aversion happens almost everywhere during decision-making [1]. However, many people tend to choose the first option because of loss aversion. Loss aversion can influence many aspects of life, and it challenges traditional economic theory which always believes people are rational. It impacts huge domains, such as consumer behavior, finance, investment, and marketing. It affects investment choices, risk perception, and consumer decisions. The paper will discuss different behavioral effects of loss aversion under different circumstances.

2. Counter Strike skin market

Counterstrike: Global Offensive (CS: GO) is a popular first-person shooter game, and it includes many skins that can modify the appearance of weapons in the game. These skins could be traded

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through the Steam Community Market by using real-world currency. It can be considered a small stock market. There are also some trading apps that allow players to trade their skins such as BUFF. The supply and demand dynamics in this market reflect different prices for each skin, and the rarer the skin, the more expensive it is. In this kind of market, loss aversion could influence players' decisions. For example, after a player bought an expansive skin in the market. If the price of this skin goes up, he would feel happy about it. The ownership made him afraid of the dropping of the skin price on the market, which would result in a loss aversion effect. He may keep the skin even though the price of the skin starts dropping. However, the potential loss of the skin could outweigh the potential gain from selling it at a higher price.

Loss aversion leads him to hold the skin for a longer time than he should. Furthermore, loss aversion may influence players' decisions on trading. Some player wants to gain new skins via trading old skins, but they are afraid of an increase in the value of their old skin after trading their old skins. Thus, they are probably unwilling to trade their old skins. This phenomenon is also caused by loss aversion.

There is a concept called "false consensus effect" which refers to the tendency to overestimate the commonness of one's own attitudes and behavior [2]. In the skin market, players may set unrealistic psychological target prices, and they believe that others also perceive the value or desirability of skins.

One factor of loss aversion in this example is that players are mistaking the market price as the true intrinsic value of skins. However, in the skin market, loss aversion often occurs and works together with other psychological biases. They work together to influence player's decisions. However, there are some phenomena in the skin market that could reflect loss aversion.

Pick a normal butterfly knife as an example, as Figure 1 shows, the price for butterfly knife trading in BUFF varies quite violently [3]. The peak occurred on August 22, 2023, the price was ¥14395, and the traded quantity was 522. But if we look back to July 21, 2023, the sale price was ¥12800, and the traded quantity was 665. Figure 1 briefly showed that when the price exceeds ¥13400, the number of sales significantly decreases, and when the price falls below ¥13400, the number of sales increases significantly. This is a sign of loss aversion since people want the price of the knife to become higher and higher, they will keep it, even when it reaches its peak. If the price of the knife falls, many people are afraid that the price of this knife will keep decreasing, so they choose to sell it. Thus, if people want to be more rational, it is a better choice for them to keep an eye on the trade chart and try to make more rational decisions.

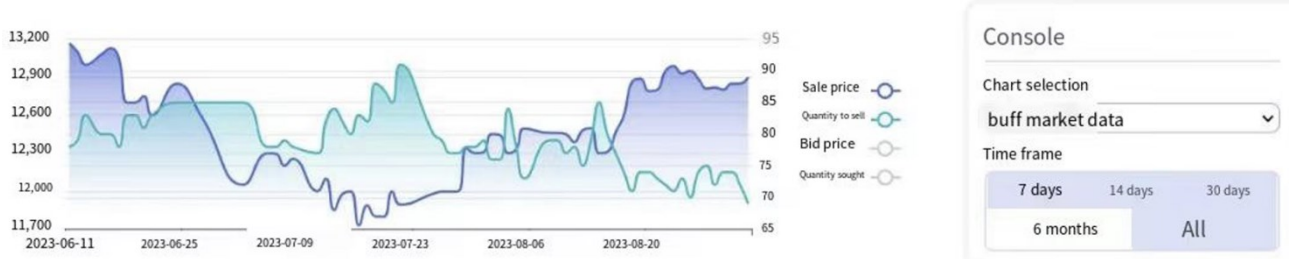

Figure 1: normal butterfly knife trading data [3]

3. Loss aversion in gambling:

Certainly, loss aversion affects gambler's behavior. Gamblers tend to choose games that have higher probabilities of winning and lower substantial losses. Furthermore, they try to reduce the emotional impact of losses during gambling. There is a phenomenon that refers to the behavior of continuing to gamble after experiencing a loss, to win back the losing money called "chasing losses" [4]. Loss-chasing describes the tendency of a gambler to amplify their betting in an effort to recoup prior losses.

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It is widely regarded as a defining feature of disordered gambling, and a hallmark of the transition from recreational to disordered gambling [5].

The chasing losses can be explained by loss aversion, loss-averse individuals want to stop losing their money and avoid losses, so they keep gambling to regain their initial investment. The emotional force of losses could lead people to keep gambling beyond their limits. For example, there is a man at a casino playing machines. The first machine gives the player the potential to win back 80% of their bets with a cap of the maximum amount of re-payment. The second one has a lower pay-back rate of 70%. But has a higher cap of re-payment. Both machines weigh losses more heavily than equivalent gains, and since the loss aversion, people may tend to choose the first machine, although it has a lower potential for a big win. The first machine renders a higher payment rate each round, which reduces the perceived risk of losing money quickly.

Loss aversion plays a crucial role in gambling behavior, and those who were more loss averse accepted fewer gambles, and this pattern varied across age and across gamble type [6]. It matches common sense: to avoid loss aversion in gambling, the best way is to stop gambling.

4. Stock market: typical trading market for loss aversion

Loss aversion also influences the reaction of investors to market change. When investors choose to buy or sell stocks, they are more sensitive to losses than gains. When there is a potential loss, they may be hesitant to sell the stock. They hope that the stock can rise and recover their investment losses.

Furthermore, loss aversion influences investors' decisions, investors tend to overestimate the potential losses, so this leads them to make irrational choices. They may try to avoid taking risks and reduce potential losses. Moreover, some investors may even keep holding the stock even if this stock is declining. Even if loss-averse investors initially hold the wealth so that the equity premium is initially very high, after a few years of trading, the equity premium can drop significantly because loss-averse investors are unwilling to participate in the equity market [7].

In addition, Boram Lee and Yulia Veld-merkoulova showed that the level of loss aversion is negatively correlated with the proportion of individual portfolios invested in equities, and highly loss-averse individuals have high levels of evaluation and rebalancing frequencies are associated with a relatively low equity holding [8]. High loss-averse people tend to be more careful with their capital, so as the loss-aversion rate getting higher, individuals hold less stock in their accounts.

Loss aversion contributes to the anchoring bias in stock trading. According to Tversky and Kahneman, the anchoring effect is the disproportionate influence on decision-makers to make judgments that are biased toward an initially presented value [9]. Investors may anchor the selling price to the initial purchase of stock, they tend to hold it until the stock reaches its imaging point, and even if the stock reaches the profitable point, they do not sell it out. Some investors do not sell the stocks to prevent regret after they sell the stocks and later the stocks recover. In addition, during the market downturn, loss-averse individuals tend to react more sensitively to negative news and decreasing stock prices. They are afraid of losing money, so they might sell stock quickly.

5. Conclusion

Sometimes people lose more, even if they are trying to reduce the risk. People who have loss aversion might trap themselves in a riskier situation because they might use the hope of ‘win in the next round’ to reduce the feeling of losing, hence end up with a higher aggregated risk. In the Counter-Strike skin market, the loss aversion mainly shows up because of the ownership between the player and the skins. When the price of this skin goes up, many players choose to keep holding it in their own account, and many players choose to sell until the prices start falling quickly. Loss aversion influences players to make irrational decisions and leads them to miss the best chance to gain profit.

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While the behavior of loss aversion in gambling is a little different from Counter-Strike skin trading. During the gambling, players keep trying to recover the original capital if they get a loss in the first game. However, almost all of them would end up losing more money.

Loss aversion in the stock market mainly influences the investors' decisions. Some investors may keep holding the stock even if the price of the stock is getting lower and lower, and they hope that they can recover the capital loss through a possible rise in the stock in the future. Some investors sell the stock out too early so that they cannot maximize their profit.

It is important to note that while loss aversion might offer some disadvantages, it could also lead people to be cautious in their decision-making and helps individuals to preserve their resources by making them more careful about protecting capitals that they already have.

Moreover, loss aversion is a bias that widely exist in our daily lives, and it is an important topic in psychology and behavior economy. Deepen our research on loss aversion could help policymakers to make better laws and rules and prevent places like casinos from using loss aversion to trap people into irresponsible gambling. Insights from the loss aversion could help us make better predictions on the economy during economic downswing.

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