Loss Aversion, from the Prospective of Stock Market, Consumer Market and Educational Field

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Abstract: Loss aversion is a key concept in behavioral economics, refers to the tendency for people to feel that a real or potential loss is more emotionally or psychologically painful than an equivalent gain. Loss aversion, as a cognitive bias, is widely present in the economic and educational fields, making important influences on individual decision-making. This research paper presents a comprehensive exploration of this effect and its diverse applications in three significant areas:limiting stock market participation, leading people to make suboptimal decisions, and making positive effects on education outcomes. This paper aims to integrate theoretical and empirical research from the economy and education fields to conduct an in-depth analysis of the impact of loss aversion in the stock market, consumer market, and education, as well as the mechanisms that give rise to these effects. By enhancing the understanding of the causes and impacts of loss aversion, it is hoped that people can reduce the irrational influences of loss aversion on decision-making and amplify the positive motivational effects of loss aversion in educational field.

1 INTRODUCTION

Loss aversion is a key concept in behavioral economics. In short, loss aversion refers to the tendency for people to feel the pain of losses more strongly than the joy of equivalent gains. This idea, highlights that people tend to make decisions that minimize losses, even if such behavior causes them to miss out on potential benefits. In both social and economic areas, loss aversion has a significant impact on decision-making behavior.

In both social and economic areas, loss aversion has a significant impact on investors to be overly cautious, avoiding high-risk opportunities even if they could yield higher returns. This conservative approach may make people miss investment opportunities, for this reason, loss aversion limits stock market participation. On a societal level, loss aversion can also influence choices in work and life. For example, employees might stay in a job they dislike simply out of fear of losing their current position, even though a new opportunity might offer better personal growth. In policy-making and social welfare, people ' s resistance to change can be driven by a fear of potential losses, often overlooking the long-term benefits of reform. Understanding and leveraging loss aversion can help policymakers and businesses design improve incentive system, ultimately fostering healthier social and economic development.

This paper aims to explore the role of loss aversion in three fields: stock market, education, and consumer market. By examining the three fields, the study demonstrates the significant consequences of loss aversion in social and economic settings. This analysis can enable people to make more rational decisions when making choices. Through delving deeper into loss aversion, individuals and organizations can make more rational decisions by being consciously aware of the influence of loss aversion on their thinking. Therefore, the negative impact of loss aversion on irrational decision-making will be reduced and the role of loss aversion in promoting development in some fields will be amplified. Loss aversion has had a profound impact on the fields of economics and behavioral economics, and it has substantial implications for real economic activities.

2 DEFINITION OF LOSS AVERSION

Loss aversion is a core concept in behavioral economics, describing the strong aversion individuals feel when faced with potential losses. It was initially

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introduced by Kahneman and Tversky in their 1979 Prospect Theory framework (Kahneman et al., 1991).

In simple terms, loss aversion refers to an individual's sensitivity and vigilance toward risky decisions that may result in loss. In the context of this study, a person can be defined as exhibiting loss aversion if they are averse to symmetric bets (where the probability of gaining or losing an equal amount is the same) and if this aversion increases as the size of the stakes grows.

In the original Prospect Theory, loss aversion is represented by a utility function that is steeper for losses than for gains. This implies that the aversion to loss is not only reflected in the utility value of the loss itself but also in the psychological impact of the loss relative to the gain. In Cumulative Prospect Theory (CPT), loss aversion is represented by both the weighting function and the utility function. The weighting function in CPT accounts for the non-linear nature of probabilities, which makes the manifestation of loss aversion more complex.

Schmidt and Zank further introduced the concept of "Strong Loss Aversion" which provides a more flexible definition of loss aversion, extending beyond symmetric bets (Schmidt & Zank, 2005). Strong loss aversion emphasizes that, all other factors being equal, individuals are more likely to choose lottery options with smaller gains and losses, regardless of other outcomes.

Building on Schmidt and Zank's work, the definition of loss aversion highlights the psychological significance of losses relative to gains and how this preference leads individuals to avoid losses rather than pursue gains when making decisions. This concept is not only theoretically significant but also plays a crucial role in explaining phenomena that traditional choice theories cannot.

3 CAUSE OF LOSS AVERSION

Loss aversion, as a central concept in behavioral economics and decision theory, describes the intense aversion and avoidance behavior individuals exhibit when faced with potential losses. It is evident in various aspects of society, making a profound understanding of loss aversion significant. Many specialized studies have explored the origins of loss aversion.

From a psychological perspective, loss aversion may stem from human risk preferences and value judgments. As Kahneman and Tversky stated in their 1979 Prospect Theory, loss aversion is a key factor driving decision-making under uncertainty (Kahneman et al., 1991). It describes how individuals tend to overestimate the significance of losses relative to equal gains, regardless of the level of risk. Research shows that loss aversion significantly influences risk-related decisions, and this effect is consistent across individuals, regardless of the type of risk involved.

Neuroscientific research has further uncovered the biological basis of loss aversion. The occurrence of loss aversion is linked to the activation of specific brain regions, particularly those that respond strongly to losses, such as the anterior insular cortex and the temporoparietal junction (Li et al., 2024). These regions play a crucial role in decisions involving potential losses. Loss aversion is associated with increased activity in brain areas responsible for processing losses, including the anterior insular cortex, right striatum, dorsal anterior cingulate cortex, and bilateral parietal lobes, with the intensity of brain region activity negatively correlating with the degree of loss aversion.

Social and cultural factors also play a significant role in the formation of loss aversion. Individuals from different social and cultural backgrounds exhibit varying degrees of sensitivity to loss. For example, collectivist cultures, which emphasize group harmony and unity, may heighten individuals' sensitivity to social norms and others' opinions, leading to higher levels of loss aversion. In such cultures, individuals may be more inclined to follow social norms to avoid the potential loss of deviating from group decisions.

In conclusion, the formation of loss aversion is influenced by psychological, physiological, and sociocultural factors across multiple levels.

4 THE APPLICATION OF LOSS AVERSION IN STOCK MARKET, CONSUMER MARKET AND EDUCATION

4.1 Loss Aversion in Stock Market

Loss aversion describes the intense aversion and vigilance humans experience when faced with potential losses. This psychological phenomenon manifests in the stock market as an excessive sensitivity and aversion to downward risks. Previous have found that a stronger sense of loss aversion suppresses household participation in the stock market and reduces the proportion of household wealth allocated to stocks. This suggests that loss

aversion, as a cognitive bias, directly influences household financial decisions, potentially causing them to miss out on stock market premiums and thereby affecting potential returns (Chen & Lu, 2024).

At the same time, the impact of loss aversion varies across households with different economic conditions. Low-income households, due to their weaker risk tolerance, are more significantly affected by loss aversion, which further limits their ability to generate wealth through the stock market.

Some scholars have also explored the impact of loss aversion on the stock market by constructing simulated stock trading models (Bertella et al., 2020). In these models, which include both fundamental investors and chart analysts, it was found that introducing a small number of chart analysts leads to higher stock returns, along with increased volatility and kurtosis, which aligns with real stock market behavior. When 5% of chart analysts exhibited loss aversion, trading volume significantly decreased, even though these investors held more stocks and adopted a “buy and hold” strategy to reduce losses. This behavior suggests that loss aversion may lead investors to be more cautious, reduce trading activity, and thus influence stock market liquidity and price stability.

Loss aversion offers a new perspective on the study of the stock market, playing an important role in understanding irrational behavior, market volatility, and other aspects of stock market dynamics. For example, some financial institutions are already trying to use this factor to improve policies (van Dolder & Vandenbroucke, 2024). Loss aversion also highlights the significant impact of loss aversion on human decision-making when facing uncertain decisions involving potential losses in the stock market.

4.2 Loss Aversion in Consumer Market

Loss aversion also has a significant impact on the consumer market, especially in price-sensitive markets. Research has found that in the gasoline retail market, when consumers face price changes, their search behavior is significantly influenced by loss aversion (Castilla & Haab, 2010). Consumers typically evaluate current prices based on expected prices. When the price exceeds expectations, consumers perceive a loss, as it means they have to pay more than anticipated. This feeling of loss drives them to search more for lower prices to compensate for the difference. In the study, when prices were 2.5% higher than expected, the probability of consumers searching was significantly higher compared to when prices were 5% higher than expected. Conversely, when the price is lower than expected, consumers perceive a gain, as it means they can purchase the product at a price below their expectation. This feeling of gain reduces their motivation to continue searching, as they have already secured a better deal than expected. In the study, when the price was 2.5% lower than expected, only a few consumers chose to continue searching. Researchers found that loss aversion leads to asymmetric search behavior in the consumer market. Consumers are more likely to search when facing a loss, but are more likely to stop searching when facing a gain. This behavior affects both consumers' purchasing decisions and price competition in the market.

In the real estate market, research has found that when housing prices decline, property sellers, due to loss aversion, tend to set asking prices higher than the market value in order to reduce the sense of loss. Data from the Boston condominium market indicates that sellers facing a loss set the asking price between 25% and 35% of the difference between the expected selling price and the original purchase price (Genesove & Mayer, 2001). Because sellers are unwilling to accept selling prices below the purchase price, many properties are withdrawn from the market, leading to a reduction in the number of properties available for trade. This behavior affects the supply and demand balance in the real estate market, as well as the market's price liquidity and transaction volume.

Overall, loss aversion in the consumer market leads to price adjustment asymmetry and irrational trading behavior, which has a significant impact on the stability and efficiency of the market.

4.3 Loss Aversion in Education

Loss aversion offers new insights into teacher incentive mechanisms. Traditional teacher incentive programs typically operate within a rewards framework, where bonuses are given based on students' performance at the end of the academic year. However, the effectiveness of this approach has been less than ideal. Research has found that by leveraging the psychological effect of loss aversion—prepaying the bonus and requiring teachers to return part of it if students perform poorly — it is possible to significantly improve students' academic performance (Fryer et al., 2012). A field experiment conducted at a school in Highland, Chicago, revealed that the teacher incentive program based on loss

aversion led to an increase in students' math scores by 0.201 to 0.398 standard deviations, which is equivalent to the effect of improving teacher quality by more than one standard deviation.

A study with over 6,000 kids in elementary and high school in Chicago to see how losing something might affect their math test scores (Levitt et al., 2016). The study had two groups. In the "loss" group, students got $20 or a trophy before their test. The students were told they would have to give it back if their scores did not get better. In the "gain" group, students did not get anything at first. But they were told they'd get a reward if their scores improved. The study found that the "loss" group did better on their math tests. It turns out that being afraid of losing something can make students try harder and get better scores.

So, using loss aversion can offer teachers effective strategies and make students more responsive to rewards, which can lead to better results in school overall.

5 CONCLUSION

This paper delves into an intriguing exploration of the loss aversion, an important concept in behavioral economics established by Kahneman, Knetsch, and Thaler. The exploration includes a comprehensive examination of the loss aversion across various domains - stock market, consumer market and educational fields. In research on loss aversion's impact in the stock market, studies using data from the China Household Finance Survey or constructing simulated stock trading models have found that loss aversion can significantly limit stock market participation. Loss aversion makes investors in the stock market overly cautious, causing them to miss out on potential opportunities. A thorough understanding of loss aversion in the stock market can help investors make more rational decisions.

In the consumer market segment, the investigation focuses on certain suboptimal choices. It examines these choices from two perspectives, one is the perspective of consumers, and the other is the perspective of market sellers. Through experiments on consumers' search behavior for oil prices and experiments on real estate sellers' pricing, this part elucidates the asymmetry often observed in transactions. Loss aversion combined with the asymmetries in transactions leads to suboptimal choices. It highlights the need for consumers and sellers to recognize the role of the loss aversion in driving these suboptimal choices. Recognizing these factors can help enhance the stability and efficiency of the consumer market.

In the study of the impact of loss aversion on the field of education, new insights are provided for incentive mechanisms from the perspectives of both teachers and students. Traditional incentive mechanisms typically operate within a rewards framework, which has proven to be less than ideal. This study proposes that incentive mechanisms should operate within a loss framework. The research results show that both students and teachers, due to the cognitive bias of loss aversion, demonstrate better educational outcomes under a loss framework. A proper understanding of the role of loss aversion in incentive mechanisms is conducive to enhancing educational effectiveness.

This paper provides a comprehensive study of the loss aversion, drawing conclusions across a variety of sectors - from stock market to consumer market and educational field. This investigation reveals the profound impact of this cognitive bias on the economic decisions and its influence on real-world applications, highlighting the significance of comprehending and utilizing it effectively. The findings are indeed compelling, yet they also raise intriguing questions and open up avenues for future research, urging people to further explore the complexity and context-specific nature of loss aversion. In the end, this study represents a significant stride towards understanding the loss aversion, providing fresh insights and considerations that are valuable for both the theoretical understanding and practical applications in the economic field.

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