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Analysis of Disposal Effect and Regret Aversion in Aviation Industry Investment in the Post-Pandemic Era—A Case Study of American Airlines

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Abstract. In 2020, there was a unique financial problem for the aviation industry caused by the pandemic. Most companies have suffered from a shortage of cash flow, increasing debt, and a large drop in the market. As enter the post-pandemic era with aviation resuming operations with a small note of uncertainty due to our increasing operating costs and geopolitical tensions. The paper utilizes American Airlines (AAL) as a case to investigate the characteristics of the irrational investor decisions in the post-pandemic environment through a behavioral finance lens and the effect on stock price volatility. Collecting the latest financial and stock price data of AAL, and integrating two typical behavioral biases, disposition effect and regret aversion, for the empirical research, the result shows that investors will usually show psychological behavior such as selling profitable assets early, postponing the disposal of loss-making assets, and blindly pursuing the rising prices when facing a high-risk market. People's emotions are connected with the stock price change, which is two-way fed back, to create the volatility of the market. Investor sentiment is what makes AAL's stock price extremely hard to predict. The conclusions of this paper can not only show the mechanism of behavioral bias in extreme market, but also provide a reference for investors to make reasonable decision and for regulatory bodies to improve market stability policy.

Keywords: Behavioral finance, disposition effect, regret aversion, American Airlines (AAL), post-pandemic era

1. Introduction

The pandemic of the disease COVID-19 occurred in 2020, making the aviation industry as well as many other industries difficult financially. Many countries implemented travel bans and lockdowns to stop the spread of the virus, and most planes were grounded, leading to a huge drop in passenger airline revenues and causing a major cash crunch [1]. Many airlines were seeking government assistance and layoffs, fleet reductions to try and survive the pandemic [2]. Subsequently, following the pandemic, the aviation industry started to make a slow recovery, and this was done with a great deal of uncertainty. First, the recovery of market demand after the pandemic was slow and unpredictable. Second, as international conflict intensified, rising operation costs and fuel prices also affected airline profit. Therefore, under the market situation where it is uncertain and risky, the investors also have great psychological pressure, which in turn affects their investment decision-making, and causes various kinds of behavior deviation [3].

In classical financial theory, the investor is assumed to be rational. But through in-depth empirical study, a lot of market anomalies appear, which does not conform to classic finance, just like the behaviors that investors will do in the extreme environment. Therefore, behavioral finance can offer a better explanation for this phenomenon. It is found that the real world of investors' behavior often violates the rationality hypothesis, and the disposition effect and regret aversion are particularly prominent. The disposition effect refers to the investor's selling of profitable assets too early and no change when holding losing assets for a long time. Regret aversion is the tendency for people to choose insurance to avoid regret over making a wrong choice. This generally comes out as herd mentality or putting off a decision in order to avoid the responsibility.

American Airlines (AAL), one of the world's largest airlines, has a fleet size and a large number of flights which are all among the top in the world. It is of considerable importance among the three major U.S. airlines and has considerable influence on the world's air transportation industry. Before the pandemic, AAL had difficulties with its old planes and lots of money it owed. The occurrence of the pandemic caused a great number of operational disruptions on a large scale and the financial condition worsened greatly, and the stock price fluctuated greatly and the total revenue decreased sharply. In this environment, the AAL stock became the center of a controversy and of the attention of the market. It went on showing fluctuations due to changes in the fundamentals of the companies and sentiments and actions of investors. Thus, AAL becomes a typical case to observe the investment activities in the aviation industry after the pandemic.

This paper takes American Airlines (AAL) as a sample for research analysis to understand how the disposition effect and regret aversion, two behavior biases, affect investors' decision making process and finally cause the price change of the stock in the unique market environment of post pandemic aviation industry. This research is meaningful because: by integrating the theory of behavioral finance and aviation industry investment practice through case study, it provides new empirical evidence for the understanding of irrational market behavior under extreme event shock; reveals the specific manifestations and mechanisms of the disposition effect and regret aversion in airline stock investment, which helps investors, especially individual investors, to recognize and avoid their own behavioral biases and make more rational investment decisions; and provides regulatory authorities with insights to better understand the amplified effect of market sentiment, and to develop corresponding policies to maintain the order of the financial market.

2. Behavioral biases in aviation investment in the post-pandemic era

2.1. Structural defects in the industry amplify behavioral biases

The inherent drawbacks of the aviation industry include high initial investment, significant ongoing operating expenses, low profit margins, and significant cyclical fluctuations. Aircraft are fixed assets with significant investments, and airlines often rely on high-leverage financing or loans to expand their fleet size, which can lead to long-term high-debt problems. Fuel, workforce, maintenance, and other fixed costs are high [4]. The US aviation industry has inherent defects in its operating model, primarily due to the large initial equipment investment and high long-term maintenance expenses. For example, American Airlines (AA) often requires high-leverage financing or long-term debt to expand its fleet, which keeps the overall debt level of the industry at a high level. The cost of introducing a brand-new aircraft, such as the Boeing 737 MAX 8 or Airbus A320neo, is

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approximately US$55 million to US$65 million.So it requires a lot of money for every one extra aircraft. From the daily operating cost of airlines in the American Airlines 2020 financial report, as shown in Table 1, it can see that the daily operating costs of airlines are extremely high. The total operating expense of the whole year is $27.76b, among which, the personnel-related expense takes up about 39.5%, while the cost of fuel accounts for about 9.3%. The first two combined is almost half of the total. Fixed costs such as maintenance, depreciation, and leasing made up about 5.7%, 7.3%, and 4.8% respectively. Passenger needs change or the company's income drops, making it hard for airlines to do much because they have too many big, hard-to-move fixed costs. It makes the industry very weak to outside risks like money going up and down, what happens in other countries, and when the weather is very bad. These basic flaws become hotbeds for investor biases when intensified [3].

Poor foundation of the industry, and poor reputation of the public. It will have a huge impact on the volatility of the market. When businesses give out warnings about profits or have their grades lowered, the money people's hate for losing gets started. To investors who are already having unrealized loss in their stock investment, the disposition effect would make those investors want to keep things the way they are, wishing and waiting for the stock to go up to recover their money, instead of making a real decision to close that position after thinking about how well or not so well the company might be doing. This lock-in behavior results in making it hard for the market to clear non-performing assets and thereby increases the risk of selling. People who bought at the lowest point of the price, got some initial profit, but now worried to lose what they made, so sold off quickly, missing out more good things from the industry getting better.

Table 1. American Airlines' operating costs in its 2020 financial report

Cost Item	Amount (in USD Millions)	% of Total Operating Costs
Aircraft Fuel and Related Taxes	2,581	9.3%
Salaries, Wages, and Benefits	10,960	39.5%
Maintenance and Repairs	1,583	5.7%
Depreciation and Amortization	2,040	7.3%
Aircraft Rentals	1,341	4.8%
Other Operating Costs	2,969	10.7%

source:https://www.annualreports.com/

2.2. External shocks exacerbate irrational conflicts

During the transition period of pandemic control, in addition to the recurring outbreaks, the fluctuating global economic recovery, rising inflation, and the surge in fuel prices triggered by events such as the Russia-Ukraine war, these sudden and unpredictable events significantly increased the asymmetry of market information and the unpredictability of future developments, thus exacerbating the irrational tendency of investor decisions [2].

Because individual investors cannot accurately predict the long-term impact of industry shocks on airlines, they often imitate the actions of other market participants, particularly institutional investors, adjusting their own portfolio strategies in response to unclear information. This leads to a collective herding effect, resulting in significant herding sentiment among investor groups. Behind this behavior lies a sense of regret and aversion. During the pandemic's spread, the market was in a state of panic selling, with many investors selling stocks out of fear of uncontrollable risks and to

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follow the lead of others, resulting in a sharp decline in stock prices. When breakthroughs are achieved in vaccine technology or the government introduces economic relief policies, positive sentiment spreads rapidly, triggering a herd mentality that drives the pursuit of rising prices and leads to a strong rebound in stock prices in the short term. Because of conformity, even if the outcome is wrong, individual negative emotions will be alleviated due to the "collective judgment error". The collective irrationality caused by external shocks makes stock price fluctuations significantly deviate from changes in fundamentals [5].

3. American Airlines case study

3.1. Company fundamentals and financial condition

As one of the world's largest airlines, American Airlines Group Inc. (AAL) focuses on passenger, cargo, and aviation-related services. In 2021, as passenger travel demand gradually recovered, revenue grew to $2.988 billion. Previously, in 2020, the pandemic had a significant impact, resulting in a decrease in revenue from $4.577 billion in 2019 to $1.734 billion. From 2022 to 2024, revenue was projected to be $4.897 billion, $5.279 billion, and $5.421 billion, respectively, with 2024 showing a near recovery to pre-pandemic levels.

As shown in Figure 1, after a sharp decline in early 2020, AAL's stock price has been fluctuating at a low level, indicating a significant time lag between the company's operational improvements and the recovery of investor sentiment. The company faces issues such as excessive debt ratio, rising fuel costs, and a mismatch between supply and demand on flight routes. Although its main revenue has returned to growth, the high debt level and reduced profitability still raise concerns about its financial stability. The current market risk pricing is obviously too high, and investors' forecasts of its future cash flow are conservative.

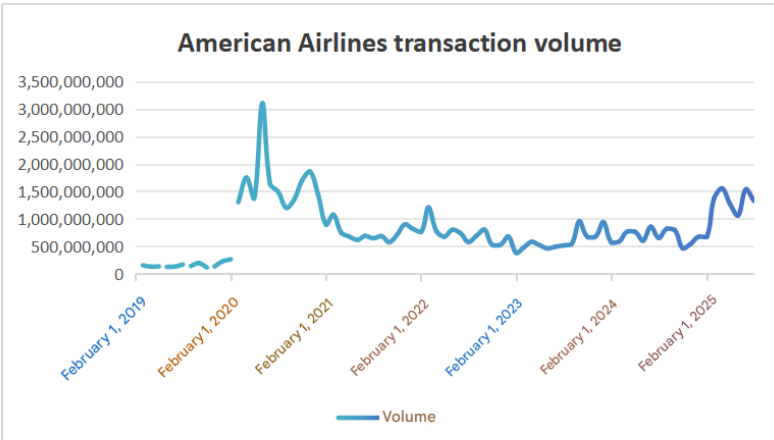

Figure 1. American Airlines transaction volume

3.2. The disposition effect in AAL investments

The irrational decision-making pattern of investors rushing to sell when they are making profits and refusing to cut their losses when they are losing money is called the disposition effect. In 2020, the average price of AAL stock fell to $14.28, and then quickly rebounded to $20.41 the following year. Many short-term traders took profits as soon as the rebound started, while long-term investors who adhered to the principle of "not admitting defeat" still held the positions they bought at the peak of the stock price in 2019. This phenomenon led to another round of decline in the stock price after

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2021, and the stock price fell back to $15.11 in 2022, further indicating that investor sentiment can greatly amplify market volatility [5].

3.3. The impact of regret aversion on AAL investment decisions

A core paradigm in investor decision-making research is regret aversion. When faced with decisions of unpredictable outcome, individuals tend to be overly defensive or delay action to prevent potential future regret. In the case of American Airlines Group (AAL), the negative impact of this psychological bias was particularly evident. In 2020, AAL's stock price fell to an all-time low of $8.25, with an average closing price of $14.28, marking the peak of bearish sentiment in the market. In 2021, increased policy support and a rebound in air transport demand led to a temporary high of $26.09, with the average price recovering to $20.41. Some investors, fearing missing out on further gains, bought at the peak, causing a rapid pullback after the initial surge. Many other investors, fearing a failed bottom-fishing attempt and further losses, missed the opportunity to buy at the bottom of the valuation. In 2022 and 2023, the average stock price of AAL continued to decline, reaching $15.11 and $14.57, respectively, confirming the pattern of correction after optimistic expectations. Regret aversion interfered with AAL's decision-making in two main irrational ways: one is "fear of loss leading to investment restriction", and the other is "buying high prices out of fear of missing opportunities" [6]. The fluctuation of investors' psychology made their decision-making pace unable to keep up with the changes in market fundamentals, causing more obvious price fluctuations. This shows the core value of emotion in the behavioral finance framework [7].

3.4. Market reaction and investor sentiment

Based on the behavioral finance dimension, changes in investor sentiment and fluctuations in market prices show a significant dynamic correlation. After 2024, dragged down by the market atmosphere, the AAL stock price fell to $13 again; in 2020, with the outbreak of the epidemic, the average closing price of AAL stock dropped to $14.28; in 2021, market optimism pushed the stock price up to $20.41. The fluctuation trend of the AAL stock price from 2019 to 2025 clearly confirms this correlation. The actual situation shows that investor sentiment will positively drive the fluctuation of the AAL stock price. Under an optimistic atmosphere, the stock price is more likely to rise, while pessimistic sentiment is often accompanied by a decline in stock price, forming a dynamic relationship of mutual influence. The continuous rise in stock prices often indicates enhanced market confidence, while a decrease in market value triggers negative investment sentiment and widens the price fluctuation range. Under the action of this mechanism, the AAL stock price is highly sensitive to policy expectations, oil price fluctuations, and macro news. The short-term reaction speed of the stock price is far greater than the change in macro data. The price trend of AAL indicates that investor sentiment is the primary driver of stock price fluctuations and the main catalyst for its sustained spread [8].

4. Conclusion

This study, using the behavioural-finance research model, selects AAL to conduct a detailed analysis of the combined effects of regret aversion and the disposition effect on investment in the airline industry during the abnormally volatile economic-reconstruction period after the pandemic. The naturally high level of leverage and cost structure of the air-transport industry were amplified by the pandemic and other unforeseen events, creating opportunities for irrational investor decisions.

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Looking specifically at the AAL case, when there is a loss on investments the disposition effect makes investors reluctant to sell, keeping the position in the hope of a small profit. This “profiteering on profit” intensifies unreasonable price fluctuations. Investment decisions driven by regret aversion involve blind following and lack of responsibility. If investors lack knowledge they are led by market sentiment and the company's stock price may drift far from its real value. Market sentiment's big swings are closely connected to AAL's stock price, meaning that irrational factors play a large part in airline-stock prices after the health crisis.

Based on these empirical findings, the following strategic advice is offered to investors and regulators. Investors—including retail investors—must objectify themselves and their possible irrational actions. When investing in volatile airline stocks, disciplined, cyclical, and rule-based investing should be used to eliminate holding biases. Decisions should rely on orderly investigation of the firm's strategic stability and industry development, while monitoring concentrated bursts of trader sentiment. Regulators should strengthen tracking and analysis of market sentiment, provide regular, verifiable information during severe fluctuations to stabilise sentiment, remove information barriers, and educate investors on behavioural finance, offering tools that reflect habitual thought processes and highlight mistakes. Quantitative methods should be used to study the impact of the disposition effect and regret aversion on stock-price changes. Other pandemic-affected industries can be analysed to identify the consistency and divergence of behavioural biases across different markets.

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