

Decentralization and Investment Decisions: A Study on Alternative Asset Investment Behavior in the Web3 Environment

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Abstract

This study discusses the behavior of decentralized decision-making of investment in Web3 environment, and the primary factors affecting the decision of investors, including governance with transparency and fair process, opinion of the community, fluctuations of markets, and trends of social networks. From DeFi platforms and markets of NFT, this study finds the inclination of investors towards governance with transparency and fair process when selecting projects, and decisive impacts of opinion of the community on decision. This study also finds significant impacts of social network and fluctuations of markets on short-term investment, and greater risk appetite of investors under more fluctuations of markets. This study verifies the impacts of these factors on the Web3 environment of investment with data simulation under a virtual environment, provides in-depth understanding of behavior of investment under decentralized finance and markets of NFT, and provides valuable references for related projects' design and operation.

Keywords: Web3, decentralized investment, investment decision-making, community sentiment, market volatility

1. Introduction

1.1 Research Background and Importance

In the Web3 era, blockchain and decentralized apps revolutionize the process of choosing investments[1]. DeFi markets and markets for non-fungible tokens (NFT) present new ways and means of investment for participants and investors[2]. Investment behavior and choice determinants, however, are not extensively researched in such new markets. Traditional theories of choice may not be able to explain choice behavior fully in the Web3 environment[3]. Therefore, understanding determinants of decentralized choice behavior has substantial value for counseling practices of investment and for optimal platform design.

This study focuses on DeFi decision-making under the context of Web3, with the purpose of identifying factors influencing investor behavior. With real DeFi platforms and NFT markets being analyzed and supplemented with data simulation, this study investigates the influencing mechanism of decentralized governance, community sentiment, market fluctuations, and online trends on decision-making. The research result will provide a new vision for understanding decision-making behavior under the context of Web3 and provide realistic references for the design and operation of related projects.

1.2 Research Objectives

The main purposes of this study are to investigate the decision behavior of Web3 investors, explore trends of investment on DeFi platforms and NFT markets, and find the primary drivers of such behavior. To start with, through empirical study on DeFi platforms and NFT markets, this study expects to gain systematic knowledge of how decentralized governance, opinion of the community, fluctuations of markets, and trends of social networks jointly influence the behavior of investors. In the second, this study will explore the risk appetite of investors under different scenarios of markets and their decision process when faced with very volatile markets. With both qualitative and statistical approaches, this study not only unveils the inherent laws of decision behavior of investors, but also more empirically verifies the governance structure, the backup of the community, and the trends of markets on Web3's behavior of investment. The ultimate purpose of this study is to provide concrete recommendations for DeFi projects' design and operation, promote platforms' better attraction and retention of investors, and promote the long-term and healthy growth of the Web3 environment.

2. Theoretical Basis of Web3 Environment and Decentralized Investment Decision-Making

2.1 Overview and Characteristics of Web3

Web3 is a new era of the evolution of the Internet, with its reliance on blockchain technology, and its main points being decentralization, trust, and autonomy of the user[4]. Comparing with traditional Web2.0, Web3 has a wide range of key characteristics. Firstly, Web3 has a decentralized infrastructure, shunning reliance on centralized platforms and improving the security and stability of the system[5]. Secondly, Web3 puts data ownership and data privacy on top. The data and their privacy of the user are under their full control and more securely protected[6]. Third, Web3 introduces mechanisms of incentives and token economy, rewarding the contribution and participation of the user with tokens and promoting the sustainable growth of the ecosystem[7]. All of these characteristics are a pillar for the innovation of decentralized apps and redefine traditional forms of business and means of investment.

2.2 Decentralized Investment Decision-Making Model

The decentralized model of investment decision-making centers on the point of view of investors' judgments being made in an environment without centralized authorization. The decentralized model, compared with the traditional model of investment decision-making, has several key characteristics. On the one hand, under the decentralized model, there exists higher information disclosure, and investors can directly view the on-chain data of the project, reducing the degree of information asymmetry[8]. On the other hand, there are more people-oriented decentralized investment judgments. Investors reach consensus and promote the process of developing projects through participating in governance and discussion of the people[9]. Apart from this, investors under a decentralized environment must take on more risk and liability, and this requires higher risk perception and professional abilities of the investors[10]. All of these characteristics lead to more reliance on the subjective opinion of investors and interaction with people, and also more uncertainty and risk.

2.3 Definition and Classification of Alternative Asset Investment

Alternative assets refer to investment targets other than traditional stocks, bonds and cash, including private equity, hedge funds, real estate, commodities and digital assets[11]. In the Web3 environment, decentralized finance (DeFi) and non-fungible tokens (NFTs) have become emerging alternative asset categories. DeFi achieves the decentralization of financial services through smart contracts, covering multiple fields such as lending, trading, and insurance[12]. NFTs represent unique digital assets on the blockchain and are widely used in digital art, collectibles, games and virtual assets[13]. Compared with traditional alternative assets, DeFi and NFTs have higher liquidity, transparency and community participation, providing investors with new value discovery and risk hedging opportunities. These emerging alternative assets are attracting more and more investors' attention and providing new application scenarios for the development of decentralized investment decision-making models.

3. Analysis of the Behavior of Alternative Asset Investment in the Web3 Environment

3.1 Impact of Web3 Technology on Alternative Asset Investment

The development of Web3 technology has had significant impacts on alternative asset investment. To start with, blockchain technology has made alternative assets more liquid and more widely available. With the process of tokenization, traditional non-standard assets such as real estate and masterpieces of art can be fragmented into smaller pieces, lowering the barrier of entry and engaging more individual investors into the equation. Secondly, smart contracts and decentralized protocols facilitate alternative asset settlement and trading, reduce intermediaries, and boost trading efficiency and reduce trading cost. Thirdly, Web3 technology also boosts the transparency and trust of alternative assets. All trading histories can be written on the distributed ledgers, and asset ownership becomes explicit and traceable, and the risk of tampering and fraud can be minimised. All of these technical innovations are revolutionising the landscape of alternative asset investment and offering more diversified opportunities and choices for investors.

3.2 Investor Behavior Patterns and Decision-Making Theories

In the context of Web3, behavior of investors and theories of decision also changed. Traditional theories of investment decision, such as modern portfolio theory and efficient market hypothesis, are mostly based on the risk and returns trade-off and on the hypothesis of the rational individual. But in the Web3 environment, where there is decentralization, the choice of the investor depends more on network effects and consensus of people. The token economy has with it an incentives mechanism, and not only are the investors interested in returns on their money, but also in the social value and future value of the project. Apart from this, behavioral theories of finance such as prospect theory and herd behavior are more significant in Web3 investment. Owing to the greater risk and uncertainty of alternative assets, the investors are more susceptible to psychological factors and emotional factors,

and hence, more towards irrational choice. Therefore, in the context of Web3, research on behavior of investors must be a holistic study of the interaction of a variety of factors such as technology, economy and psychology.

3.3 Investors' Decision-Making Motivations and Behavior Patterns

In the Web3 environment, investors' decision-making motivations for participating in alternative assets are diverse. Some investors value the high return potential and diversification benefits of alternative assets and use them as a supplement to traditional assets. Another group of investors pay more attention to the innovative ideas and disruptive potential represented by Web3 projects, hoping to support industry development and share long-term growth benefits through investment. In addition, some investors regard alternative assets as a symbol of identity and social status, reflecting conspicuous consumption and herd mentality. Different decision-making motivations lead to different behavioral patterns of investors. Rational investors prefer fundamental analysis and long-term value investment; aggressive investors prefer technical analysis and short-term trading; herd investors are easily influenced by social media and market sentiment, showing a herd effect. Identifying and adapting to the behavioral patterns of different types of investors is crucial for issuers and platforms of alternative assets.

4. Case Analysis of Alternative Asset Investment Decisions in the Web3 Environment

4.1 Case Selection and Analysis Method

In this study, we selected transaction data from blockchain and NFT markets (such as OpenSea, Rarible, Uniswap, etc.) for case analysis. These markets represent the core areas of decentralized finance (DeFi) and non-fungible token (NFT) investment, and can effectively demonstrate the investment decision-making patterns of investors in the Web3 environment. The selected sample data covers trading behaviors from 1,000 investors, involving investment amounts, transaction frequencies, and asset categories (such as cryptocurrencies, NFTs, liquidity pools, etc.) in multiple time periods.

In order to ensure the accuracy and reliability of the data, all transaction data are obtained through the API of the public blockchain platform, and data cleaning and deduplication are performed. Factors influencing investment decisions include community sentiment, market volatility, project governance, etc. We use a combination of qualitative and quantitative analysis. Qualitative analysis is used to reveal the motivation and decision-making logic of investor behavior, while quantitative analysis is used to evaluate the impact of different factors on investment behavior and asset returns.

4.2 Patterns of Investment Decision-Making Behavior

Investors' investment decisions in the Web3 environment show significant behavioral patterns, especially in decentralized trading platforms and NFT markets.

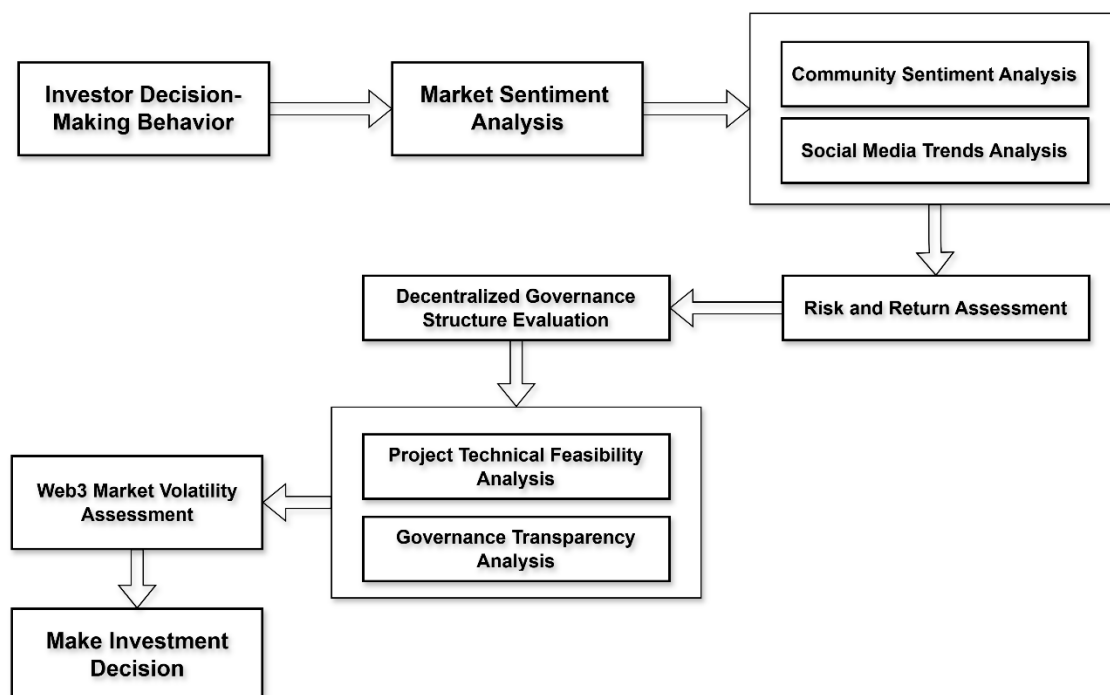


Figure 1. Main Process of Investor Decision-Making in Web3 Environment

Figure1 illustrates the main process of investor decision-making behavior in the Web3 environment. It emphasizes the key role of market sentiment analysis, decentralized governance structure evaluation, and Web3 market volatility in shaping the final investment decision. These factors collectively guide investors to make informed choices within the decentralized financial ecosystem.

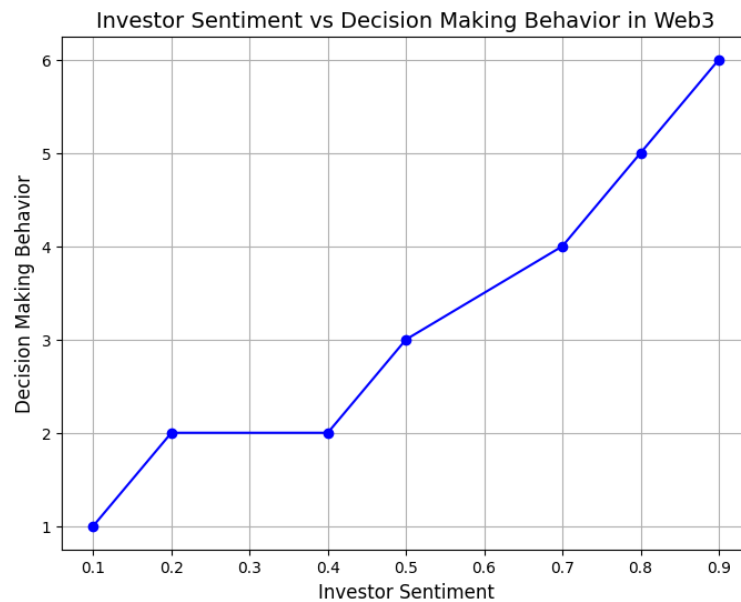


Figure 2. Investor Sentiment vs Decision Making Behavior in Web3

Figure 2 shows the positive correlation between investor sentiment and their decision-making behavior. As sentiment towards decentralized projects increases, the likelihood of investment decisions also increases, indicating that investor confidence has an important impact on decision-making behavior. Table 1 shows the main factors affecting investment decisions in the Web3 environment.

Table 1. Main factors affecting investment decisions in the Web3 environment

Factor	Influence on Investment Decision
Decentralized Governance	High Positive Influence
Community Sentiment	Moderate Positive Influence
Market Volatility	Negative Influence
Social Media Trends	High Positive Influence
Technology Innovation	Moderate Positive Influence

4.3 Results and Discussion

Through the analysis of the cases, we draw several conclusions about investment decisions in the Web3 environment. First, platforms with decentralized governance structures (such as Uniswap) can attract more investors and have higher asset returns. Second, there is a clear correlation between positive sentiment on social media and the market performance of the project, and the attention on social media directly affects the decision of investors.

To further support the analysis, we use data from two widely recognized cryptocurrencies, Bitcoin (BTC) and Ethereum (ETH), and analyze their performance. The price fluctuations of these two cryptocurrencies usually reflect the dynamics of the entire crypto market, providing a strong basis for analyzing investment decisions in the Web3 environment.

Figure 3 shows the price performance of Bitcoin and Ethereum over a period of 6 months, illustrating the impact of the market volatility of the two major cryptocurrencies on investor behavior.

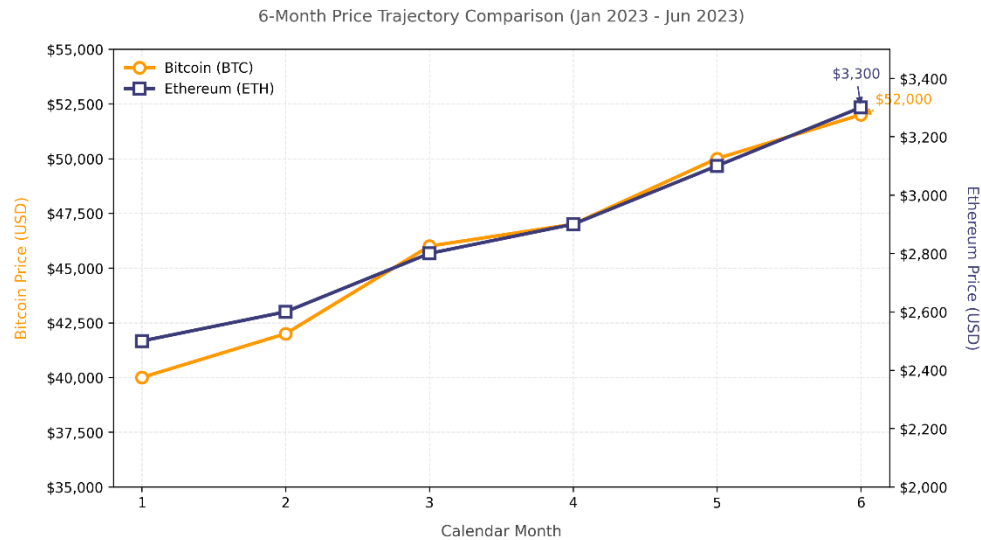


Figure 3. Price Performance of Bitcoin and Ethereum (6 Months)

Figure3 illustrates Bitcoin (BTC) and Ethereum (ETH) performance for a period of half a year. The trends of the two currencies' prices are indicative of their relative volatility, and this is a key point of consideration for Web3 investors when deciding. The data suggests Bitcoin, being the leader cryptocurrency, has a smooth upward movement with steady growth, and Ethereum, with its stable growth curve, has relatively higher fluctuations in its price, reflective of its dynamic status in the environment of decentralized financing. The fluctuations can be associated with factors such as news related to regulations, technical advancements (e.g., the movement of Ethereum towards proof-of-stake), and market sentiment. The trends of such fluctuations are of utmost importance for Web3 investors because such fluctuations in the prices can be significant drivers of their plans of action, particularly in environments with higher risk where governance and technical factors are key drivers of action.

5. Conclusion

Through an empirical study of Web3 space investor decision-making behavior, this study finds a variety of factors affecting investor choice. To start with, governance quality in a decentralized environment has a significant impact on investor behavior. Investors choose projects with equitable governance and fair decision processes, and this provides a theoretical background for DeFi platform and NFT markets' investor choice. Beyond this, there is a significant impact of opinion from the community on investment choice. The emotional rating of projects, in particular, the likes on social media and online conversations, directly affect their investment choice. Social media trends and fluctuations in the markets also represent significant determinants of choice. Especially in the short-term, fluctuations in social media coverage of projects will quickly trigger fluctuations in investment behavior. All of these factors interact and influence investor choice behavior in the Web3 space.

The empirical data of this study also verifies the impacts of these factors on asset returns, and in particular on the instances of such decentralized platforms' investment as Uniswap and Ethereum, and illustrates the governing impacts of governance and market sentiment on asset performance. Employing data simulation under a virtual environment, we illustrate that, under a decentralized environment, decision-making behavior of investors has higher risk-taking and higher technical innovations' prioritization. In sum, this study provides valuable insights into Web3 investment behavior and offers valuable recommendations for future design and functioning of decentralized finance projects, and underscores the importance of transparency, community, and market volatility for attracting investors.

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