FQAI
White Paper

Freeman
Quantitative Trading

Multi-dimensional perspective,
precise investment; data-driven

Preface

In today's complex and volatile financial markets, investment decisions are becoming increasingly challenging due to the rapid pace of market changes, the rise of big data, and the increasing complexity of quantitative models. For investors seeking to get ahead, traditional investment methods such as passive asset allocation or active stock picking may no longer be enough to achieve long-term stable and superior returns. This is where quantitative trading comes into play, providing a systematic and data-driven approach to investment decisions.

As a cutting-edge quantitative trading system, Freeman Quantitative Trading represents a major leap forward in the field of algorithmic investing. By combining advanced mathematical models, cutting-edge data analysis techniques, and powerful risk management strategies, Freeman Quantitative Trading aims to provide investors with powerful tools to deal with the complexity of modern financial markets. The system's reliance on multi-factor models, dynamic volatility management, and automatic trade execution sets it apart from traditional investment strategies, providing a unique combination of precision, reliability, and scalability.

The foundation of Freeman Quantitative Trading lies in its multi-factor model, which integrates a variety of variables to more accurately predict market movements. These factors include not only traditional market indicators such as market capitalization and valuation ratios, but also macroeconomic variables such as GDP growth rates and interest rates. By analyzing these factors simultaneously, Freeman Quantitative Trading can identify subtle trends and patterns that may be overlooked by simple models.

The system’s automated capabilities further enhance its effectiveness. By leveraging advanced algorithms and machine learning techniques, Freeman Quantitative Trading can execute trades with minimal latency, reducing the risk of market timing errors and ensuring that investors act immediately when the best signals emerge. This level of efficiency not only improves returns, but also minimizes traders’ cognitive burden, allowing them to focus on higher-level decisions.

Freeman Quantitative Trading is poised to evolve with the changing needs of the financial markets. For example, the integration of artificial intelligence and blockchain technology is expected to further enhance the system’s predictive capabilities and operational efficiency. As markets become increasingly interconnected and data-intensive, Freeman Quantitative Trading will continue to adapt to provide investors with reliable and scalable solutions in an ever-changing financial environment.

Freeman Quantitative Trading represents a paradigm shift in the way investors approach market analysis and decision-making. By combining cutting-edge technology with a deep understanding of market dynamics, Freeman Quantitative Trading provides powerful tools for long-term financial success. Whether you are an experienced investor or a novice curious about the world of quantitative trading, the system provides a wealth of insights and opportunities to optimize your investment strategy. As you delve into the details of this white paper, you will gain a deeper understanding of the innovative approach Freeman Quantitative Trading has developed to address the challenges of modern finance.

FQAI

Catalog

FQAI

Catalog

01. Overview

1.1 System Background and Development Motivation

Freeman Quantitative Trading was developed by a technical team that once worked at C3.ai, Inc.! The team is led by the pseudonym Freeman, who has more than 10 years of experience in AI-related research and development and has made great contributions to C3.ai, Inc.

At the beginning of 2021, the technical team headed by Freeman saw the future development space of the AI industry and the unprecedented challenges facing the global economy (including the epidemic, the Ukrainian-Russian war, inflation, etc.). The economic outlook is full of uncertainty, and the pessimistic economic outlook means that the volatility of the financial market has intensified. Traditional investment concepts and methods can no longer meet the needs of the new era. Investors need to take advantage of the technological revolution and master new investment tools and strategies to gain insight into opportunities in the transformation and seize the wealth opportunities of the times!

Freeman then led the technical team to develop a trading program that can save time and provide help to investors. After a year, Freeman Quantitative Trading 1.0 was officially launched in March 2022, but the global market plummeted. After internal testing, it was found that Freeman Quantitative Trading 1.0 still had too many problems and needed to be developed and updated!

However, they encountered a very big problem. There was not enough money to support their subsequent research and development and trial and error. So Freeman launched financing in the financial industry. Asset management companies such as Fortress Investment Group, Lone Pine Capital, Geode Capital Management and HorizonPointe Financial Group participated in it and became investors, providing sufficient financial support for the subsequent research and development of Freeman Quantitative Trading. Freeman Quantitative Trading 2.0, 3.0, and 4.0 have been released one after another, and related tokens (FQAI) have been issued in the cryptocurrency market

In early 2024, NVIDIA launched a more powerful computing chip, which provided strong impetus for the research and development of Freeman Quantitative Trading 5.0. After a year, Freeman Quantitative Trading 5.0 has achieved initial success and is currently undergoing final improvements. Because the investment market mechanism of each country is different, and AI needs to accumulate more data and more customer groups, so after the system is improved, grayscale testing is required, and it will be launched after completion!

In recent years, cutting-edge technologies such as artificial intelligence, big data and cloud computing have been increasingly used in the financial sector. AI technology can not only quickly process massive amounts of market data, but also continuously optimize strategies through machine learning, making trading systems more adaptable and predictive when dealing with market uncertainties.
It is in this context that Freeman Quantitative Trading uses deep learning and advanced algorithmic models to automate quantitative trading to improve decision-making speed and accuracy.

1.2 The goal and significance of freeman quantitative trading

As a quantitative investment method based on big data analysis and artificial intelligence algorithms, Freeman Quantitative Trading aims to give full play to the advantages of data-driven by accurately predicting market dynamics and optimizing investment decisions. In today's financial market, with a flood of data and a complex and ever-changing environment, the core goal of Freeman Quantitative Trading is to maximize investment returns and minimize risks, while meeting the growing demand of modern investors for efficient and accurate investment tools.

Specifically, the goals of Freeman Quantitative Trading include the following aspects:

- First, by building a multi-factor model, integrating macroeconomic data, market sentiment indicators and asset fundamentals information, we can accurately identify potential market trends;
- Second, using advanced algorithmic trading systems to automatically execute optimal trading strategies and reduce errors and costs of manual operations;
- Third, in the complex and changing financial markets, Freeman Quantitative Trading can effectively respond to market volatility and uncertainty, providing investors with a continuous and stable source of income. At the same time, the system also focuses on the diversification of investment portfolios and risk hedging mechanisms, aiming to minimize the overall risk of the investment portfolio.

From the perspective of significance, Freeman Quantitative Trading is not only an investment tool, but also an important solution for realizing intelligent and automated investment decision-making. It can help investors extract key information from massive data, make decisions quickly in a complex market environment, and continuously improve investment returns by continuously optimizing trading strategies. In addition, Freeman Quantitative Trading also provides more competitive investment options for institutional investors and high-net-worth individuals, while also promoting the popularization and innovation of quantitative investment methods. Overall, Freeman Quantitative Trading has significant practical value in improving investment efficiency, reducing investment costs, and optimizing investment portfolio allocation.

1.3 System design concept and core value

The design concept and core value of Freeman Quantitative Trading mainly revolve around achieving accurate, efficient and stable investment decisions, while demonstrating strong adaptability and risk resistance in the complex and ever-changing financial market. The core of its design concept is to build an investment platform that can continuously optimize and adapt to market changes through FQAIentific theoretical support, advanced technical means and systematic modular design.

1.3 System design concept and core value

The design concept of Freeman Quantitative Trading is mainly reflected in the following aspects:

Data-driven and model optimization:

Freeman Quantitative Trading is based on massive market data, combined with advanced machine learning algorithms, and accurately identifies market trends and investment opportunities through big data analysis and deep learning technology. This design concept emphasizes the value of data and the iterative optimization capabilities of the model, aiming to improve the investment accuracy of the system through continuous learning and adaptation.

Modular design and system scalability:

The core of the modular design of Freeman Quantitative Trading is to decompose the entire trading system into multiple independent and interrelated modules, including data collection, signal generation, risk control and transaction execution. This design method not only improves the flexibility and maintainability of the system, but also provides sufficient technical support for future scalability and upgrades.

Systematization and Automation:

Freeman Quantitative Trading pursues a high degree of systematization and automation. By executing automated trading strategies, it reduces the impact of human intervention on the market while improving trading efficiency and cost-effectiveness. The core of this design concept is to achieve standardization and efficiency of investment decisions, thereby maintaining a competitive advantage in a complex market environment.

Risk Management and Uncertainty Handling:

Freeman Quantitative Trading emphasizes the systematic treatment of risk management, and effectively responds to market volatility and uncertainty by building a multi-dimensional risk control mechanism. The core of this design concept is to ensure the stability of the investment portfolio and reduce potential risks while pursuing returns.

1.3 System design concept and core value

The core value of Freeman Quantitative Trading is mainly reflected in the following aspects:

Data-driven and model optimization:

Through advanced data collection, analysis and calculation technology, Freeman Quantitative Trading can quickly identify market trends and investment opportunities, and provide investors with FQAIentific decision-making support. This accuracy not only improves investment returns, but also reduces errors and risks in human judgment.

Efficient capital operation:

Freeman Quantitative Trading significantly improves the efficiency and cost-effectiveness of fund operations through automated trading and modular design. Compared with the traditional manual trading model, Freeman Quantitative Trading can complete trading decisions in a shorter time and reduce transaction fees and slippage risks.

Stable earnings performance:

Freeman Quantitative Trading takes long-term stable investment returns as its core goal. Through the combination of multi-factor models and risk control mechanisms, it effectively reduces the volatility and uncertainty of the investment portfolio. This stability attracts investors who pursue stable returns.

02. The technical architecture of Freeman Quantitative Trading

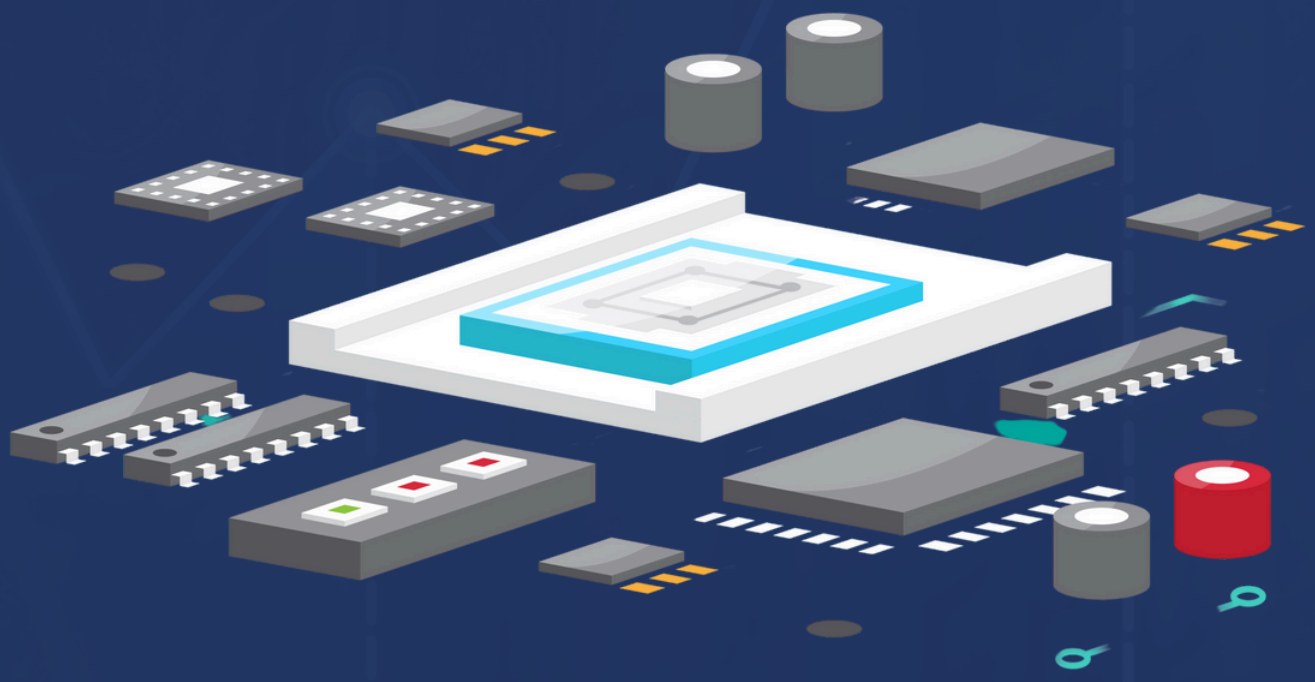
2.1 Data acquisition and processing module

The data collection and processing module is the core cornerstone of Freeman's quantitative trading. It demonstrates a high degree of professionalism and reliability in terms of data quality, source diversity, and processing efficiency. This module is mainly responsible for obtaining market information from multiple dimensions and converting it into analyzable quantitative data through a series of processing steps.

The data sources of Freeman Quantitative Trading are extensive, including but not limited to the following:

- Market data: real-time updated basic data such as opening price, closing price, highest price, lowest price, trading volume, etc.
- News event data: such as company announcements, macroeconomic indicators, industry trends, etc., these data are converted into quantifiable indicators through natural language processing (NLP) technology.
- Social media data: use text mining technology to analyze users' comments and emotions on specific events.
- Company financial report data: including earnings reports, balance sheets, shareholder information, etc., extract key data through financial indicator analysis.
- Technical indicator data: such as moving averages, relative strength indexes (RSI), Bollinger bands, etc., generated by algorithmic calculations.

During the data collection process, the system will strictly control the integrity and consistency of the data to ensure the availability and reliability of the data.



2.1 Data acquisition and processing module

The data collection and transmission module adopts a distributed architecture to ensure the efficiency and security of data:

Data Collection Technology	**Use high-performance sensors and API interfaces to obtain market data in real time to support high-frequency trading needs.**
Transmission medium	**Data is transmitted to the core server via high-speed network, ensuring low latency and high stability.**
Data relay	**During data transmission, redundant relay nodes are used to prevent data loss or delay.**

Data cleaning and preprocessing are key steps to ensure data quality

For missing data, use interpolation methods (such as linear interpolation or mean filling) or machine learning algorithms to predict missing values. Use statistical methods (such as Z-score) or machine learning models to identify and eliminate abnormal data. Convert data to a standardized format for subsequent analysis. Use signal processing techniques (such as Fourier transform) to remove noise and improve data accuracy.

The data collection and processing module of Freeman Quantitative Trading is a complex system, covering multiple links such as data source, quality control, cleaning, feature extraction, storage and monitoring. Through advanced technical means, this module ensures the efficiency, accuracy and reliability of data, providing a solid foundation for the core functions of Freeman Quantitative Trading.

2.2 Technical indicator calculation and signal generation module

The technical indicator calculation and signal generation module is the core engine of Freeman quantitative trading, responsible for analyzing market data and generating trading signals. Based on a multi-factor model, this module combines historical data, market sentiment and macroeconomic indicators to identify potential market opportunities and risk points through complex mathematical calculations and machine learning algorithms.

Technical indicator calculation

- Moving Average: used to filter short-term noise and capture long-term trends. For example, a combination of 5-day, 10-day, and 20-day moving averages is often used to determine market trends.
- Relative Strength Index (RSI): measures changes in asset price momentum and is often used to identify overbought or oversold conditions.
- MACD (Moving Average Convergence Divergence): generates a signal line through the crossover of two exponentially smoothed moving averages to detect changes in price trends.
- Bollinger Bands: based on the moving average and standard deviation of the price, used to measure price volatility.
- Relative Volatility (RSR): measures the volatility of an asset relative to the market or the same industry group, used for risk assessment.
- Fibonacci Retracement: based on the ratio of the Fibonacci sequence, used to predict potential support and resistance levels for price pullbacks.

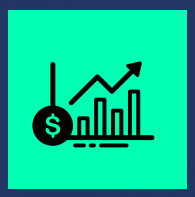
Signal Generation

- Limit up and down conditions: When the technical indicator reaches the preset overbought or oversold threshold, the take-profit or stop-loss transaction is triggered.
- Trend direction judgment: According to the crossover direction of the moving average or the overbought/oversold state of the RSI, the market trend is judged and the corresponding position suggestions are generated.
- Periodic signals: Through the opening or shrinking pattern of the Bollinger Bands, the strength and reversal signals of the price trend are identified.
- Multi-factor combination signals: Combine the signals of multiple indicators to build a multi-factor model to optimize the stability and profitability of the trading strategy.

2.3 Risk management and automated trading execution modules

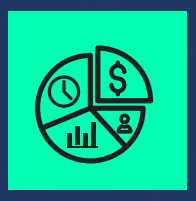
The risk management and automatic trading execution module of Freeman Quantitative Trading is one of its core systems, which aims to ensure the stability and efficiency of the trading system. This module combines multi-factor models with advanced algorithm optimization technology to achieve precise control of market risks and automatic execution of trading processes.

Signal Generation



Dynamic stop loss and take profit mechanism

This module monitors market fluctuations and trading performance in real time, dynamically adjusts stop loss and take profit thresholds, and effectively controls trading risks. When market prices deviate from the expected track, the system will automatically trigger stop loss or take profit to avoid major losses.



Volatility Monitoring and Adjustment

The system will dynamically adjust the risk profile of the investment portfolio according to changes in market volatility to cope with the uncertainty of the market environment. For example, when market volatility increases, the system will reduce the holdings of assets with higher volatility to reduce the overall risk.

Multi-factor risk control

Combined with multi-factor models, we conduct multi-dimensional assessments of market risks, identify potential systemic risks and take corresponding measures.

Automatic trading execution system

- High-frequency trading and algorithmic execution: This module supports high-frequency trading and automated execution, and ensures rapid response and accurate execution of trading instructions through complex algorithms and high-frequency data processing technology.
- Flexible trading strategy adjustment: The system can automatically adjust trading strategies and parameters based on market feedback and strategy optimization results to maintain the dynamic balance of the trading system.
- Risk management and transaction isolation: In a multi-strategy combination, the system will automatically isolate risks to avoid mutual interference between different strategies to maximize returns and minimize risks.

2.4 Modular design and system scalability

The modular design and system scalability of Freeman Quantitative Trading are one of its core advantages, aiming to provide flexible, scalable and efficient solutions for complex quantitative trading systems. The modular design achieves modular scalability and flexibility of the system by dividing the system into independent functional modules (such as data collection, technical indicator calculation, risk management, etc.).

Modular architecture

Each module of the system (such as data acquisition module, signal generation module, risk management module, etc.) is designed as a relatively independent functional unit. Each module is responsible for a specific task and can be run alone or combined as needed. When adding new functions or optimizing existing modules, there is no need to make major adjustments to the entire system. For example, new trading strategies or risk control methods can be introduced according to market demand, and only relevant modules need to be adjusted. Modular design supports the parallel operation of multiple modules, which can improve the processing efficiency and response speed of the system.

System flexibility and adaptability

The system configuration can be achieved through configuration files or parameter adjustments. Users can quickly switch between different configuration modes or strategy combinations according to their needs to meet the needs of various investment scenarios. The modular design allows the system to automatically adjust configuration parameters or module functions according to the market environment or strategy performance, such as dynamically adding high-frequency trading modules to cope with rapid market changes.

Maintainability and scalability

The modular design allows each part of the system to be developed and maintained independently, reducing the complexity of the overall system and improving maintenance efficiency. The modular design supports rapid function iteration and upgrades, and can respond to industry technological advances and changes in the market environment in a timely manner.

Through modular design and system scalability, Freeman Quantitative Trading not only improves the stability and reliability of the system, but also provides full potential for future market adaptability and technological innovation. This design embodies the spirit of technological innovation in the field of quantitative trading and can meet the increasingly complex market environment and investment needs.

03. The core functions of Freeman quantitative trading

3.1 Application of the Golden Section

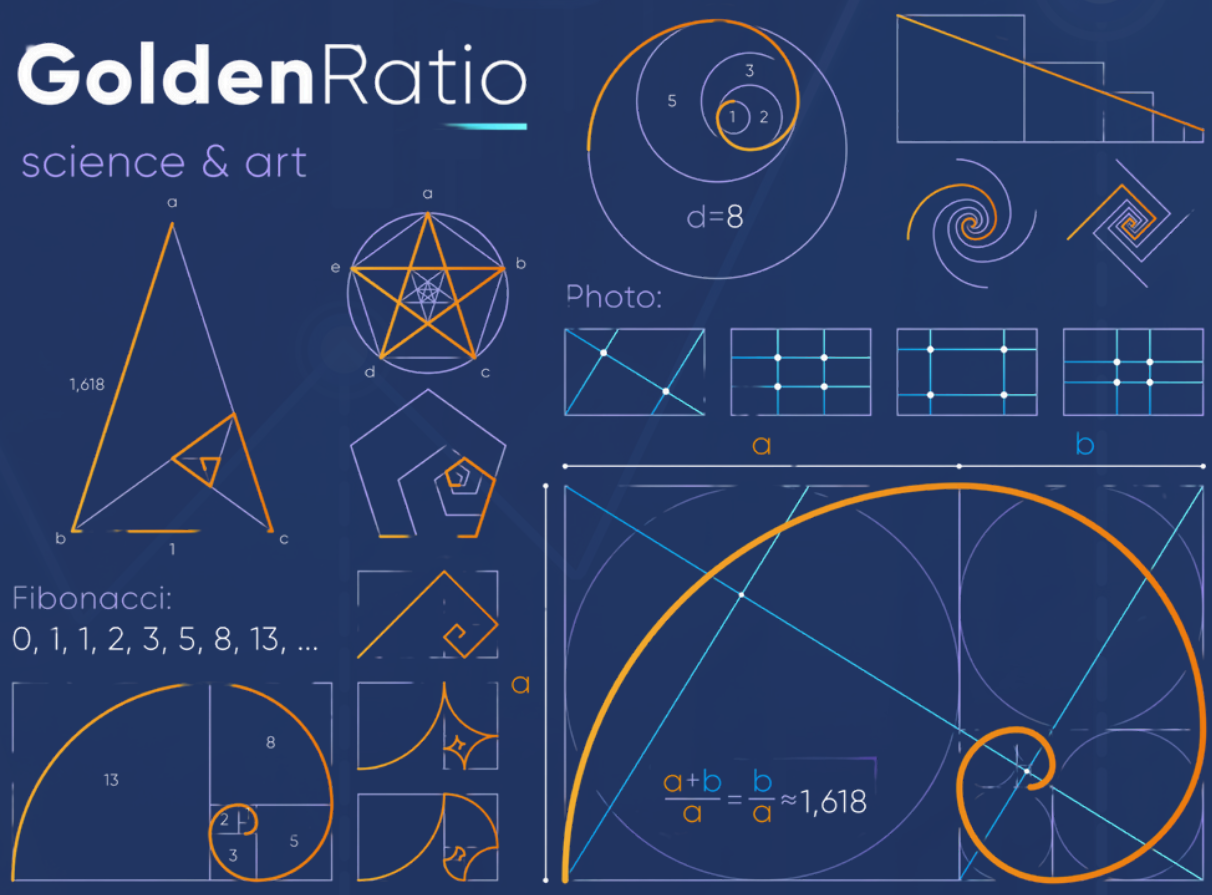
In free people quantitative trading, the golden section rule is one of the core strategies and is widely used in medium-term trend trading and investment decisions. This rule not only embodies the beauty of mathematics, but is also regarded as an important support point and turning point in the financial market.

The core concept of the golden ratio

The golden ratio is based on the golden ratio in mathematics (about 0.618), which states that in an increasing or decreasing trend, prices tend to form support or resistance at 0.618. This theory originated from the Fibonacci sequence and is also widely used in art, architecture and finance.

In Freeman Quantitative Trading, the golden ratio is integrated into technical analysis tools and used in combination with indicators such as moving averages and Bollinger Bands. For example:

Support and resistance: In an uptrend, the price may form a resistance level at 0.618; in a downtrend, the price may form a support level at 0.618.
Trend confirmation: When the price breaks through the golden ratio, it may indicate a reversal of the trend, thereby triggering a trading signal.



3.1 Application of the Golden Section

The Freeman Quantitative Trading System uses machine learning algorithms to traverse and analyze historical data to optimize the application scope and sensitivity of the golden ratio. The system automatically adjusts the sensitivity of the golden ratio according to the market environment to improve the stability and profitability of the strategy. In the practice of Freeman Quantitative Trading, the golden ratio has been proven to be an effective trend identification tool. By combining technical indicators and market sentiment analysis, the strategy can effectively capture trading opportunities in trends and provide certain risk control in markets with high volatility.

In the Freeman quantitative trading system, the golden section rule does not exist in isolation. It is combined with other multi-factor models (such as value factor, momentum factor, etc.) to form a multi-dimensional strategy system. This combination optimization not only improves the system's returns, but also reduces risks.

Taking the 2022 market as an example, the golden ratio has performed well in multiple asset classes. For example, in the Bitcoin market, the price rebounded after forming a support level at 0.618, triggering multiple profitable transactions. Similarly, in the traditional stock market, the golden ratio is also used to determine the tops and bottoms of the market index.

Freeman Quantitative Trading plans to further optimize the application of the golden ratio in future system upgrades. For example, by introducing a dynamic adjustment mechanism, the golden ratio can automatically change according to market volatility, thereby improving the adaptability of the strategy.

Through the application of the golden ratio, Freeman Quantitative Trading not only embodies the beauty of mathematics, but also provides a FQAIentific basis for investment decisions. The efficiency and stability of this strategy make it occupy an important position in the field of quantitative trading.

3. 2 Application of Fibonacci Wave Theory

Fibonacci Wave Theory is one of the widely used tools in financial analysis. It is based on the natural law of the Fibonacci sequence and is used to identify cyclical cycles and potential key points in market prices. In the system of free quantitative trading, this theory is integrated into high-frequency trading and intraday trading strategies to optimize market participation and risk control.

The Fibonacci Wave Theory divides price fluctuations into rising waves and falling waves, and the length of each wave usually follows the Fibonacci ratio, such as 0.618, 0.382, etc. The theory holds that these ratios can help predict the end point of price fluctuations and provide key support and resistance levels.

In Freeman Quantitative Trading, the Fibonacci Wave Theory is applied to high-frequency trading and intraday trading modes. The trading system identifies the wave shape of price fluctuations, determines the end point of each wave, and generates potential trading signals based on the Fibonacci ratio. For example:

Support and resistance: When the price reaches a specific Fibonacci ratio, support or resistance may be formed, triggering a buyer or seller signal.
Trend confirmation: By analyzing the shape and proportion of the wave shape, the trading system can more accurately determine the continuation or reversal of the trend.

The Freeman Quantitative Trading System combines machine learning algorithms with the Fibonacci Wave Theory to achieve dynamic adaptation to the market environment. The system optimizes the application scope and sensitivity of the Fibonacci ratio by traversing historical data to improve the stability and profitability of trading strategies. For example, the system can automatically adjust the Fibonacci ratio according to market volatility to cope with the characteristics of different markets.

In practical applications, the combination of Fibonacci wave theory and the Freeman quantitative trading system significantly improves trading efficiency. By accurately identifying the key points of price fluctuations, the trading system can intervene at critical moments, reduce invalid transactions, and increase the winning rate. Especially in high-frequency trading and intraday trading modes, this strategy can effectively capture trading opportunities in short-term market fluctuations.

Freeman Quantitative Trading plans to further optimize the application of Fibonacci Wave Theory in future system upgrades. For example, by introducing a dynamic adjustment mechanism, the Fibonacci ratio can automatically change according to market volatility, thereby improving the adaptability of the strategy. In addition, the system also plans to introduce more advanced technical indicators and analysis tools to further enhance the ability to understand and predict the market.

Through the application of Fibonacci Wave Theory, Freeman Quantitative Trading can not only more accurately identify market trends and key points, but also significantly improve trading efficiency in high-frequency trading and intraday trading modes. The efficiency and stability of this strategy make it occupy an important position in the field of quantitative trading, providing investors with FQAIentific basis and actual benefits.

3. 3 Multi-factor models and heterogeneous asset support

The Freeman Quantitative Trading System adopts a multi-factor model to conduct an in-depth analysis of the asset price formation mechanism by integrating a variety of fundamental, technical and market sentiment factors. The model uses factor decomposition technology to extract the main driving factors in the market, such as market risk, industry risk, valuation risk, etc., to build a diversified basis for investment decision-making. By dynamically adjusting the factor weights, the trading system can more accurately identify market trends and investment opportunities, and improve the stability and profitability of trading strategies.

The Freeman quantitative trading system uses factor decomposition technology to extract the main driving forces from historical data, including market risk factors, industry risk factors, valuation factors, and sentiment factors, and build a multi-dimensional investment decision support system. By dynamically adjusting factor weights, the trading system can flexibly optimize investment strategies according to changes in the market environment, improve the stability of strategies and risk control capabilities. At the same time, the multi-factor model can also tap into nonlinear relationships between assets and explore potential investment opportunities.

At the same time, the multi-factor model can also tap into the nonlinear relationship between assets and explore potential investment opportunities. In terms of asset support, the Freeman Quantitative Trading System particularly supports heterogeneous assets, including stocks, bonds, commodities and other asset classes. This design allows the trading system to build a multi-asset class portfolio, and through diversified investment among assets, it effectively reduces the risk volatility brought by a single asset class, while increasing the return potential of the overall investment portfolio. For example, in the stock market, the system can identify high-growth, low-valuation stocks; in the bond market, it can screen bonds with good credit ratings; in the commodity market, it can capture opportunities for cyclical fluctuations.

Through the support of this multi-level multi-factor model and heterogeneous assets, the Freeman Quantitative Trading System can provide investors with stable and profitable investment strategies in the complex and ever-changing financial markets, significantly improving investment efficiency and return performance.

3. 4 Automated trading strategies and risk management

Automated trading strategy is one of the core functions of the Freeman quantitative trading system, which aims to achieve accurate market forecasts and investment decisions through algorithms. The strategy is based on multi-factor models and heterogeneous asset support, combined with the golden section rule and Fibonacci wave theory to build a dynamic trading signal generation mechanism. The algorithm identifies market trends and investment opportunities through real-time data collection and processing, combined with technical indicators (such as moving averages, MACD, RSI, etc.) and statistical arbitrage methods. The system adopts a modular design, dividing trading strategies into two categories: multi-factor combinations and high-frequency trading, and configuring strategies for different market cycles and volatility.

In terms of risk management, the system builds a multi-level protection mechanism. The first is the stop loss and stop profit strategy, which automatically adjusts the transaction scale according to market volatility; the second is the technical rollback mechanism to prevent abnormal strategy execution from causing major losses; and the last is the dynamic adjustment mechanism to optimize strategy parameters in real time when the market environment changes. Through data pre-processing and post-processing technology, the stability and reliability of trading signals are ensured, while the difference between backtesting and actual trading is effectively controlled to reduce system risks.

In addition, the Freeman quantitative trading system also has dynamic adjustment capabilities, and can optimize trading strategies in real time according to changes in the market environment. The system continuously iterates and optimizes strategy parameters by comparing backtested historical data with real-time data, ensuring that it can maintain a high winning rate and stability in different market cycles. This intelligent dynamic adjustment capability enables the system to have strong adaptability and stability in the process of automated trading, providing investors with efficient and safe quantitative trading solutions.

Trading Statistic

First Year Growth (Increase)

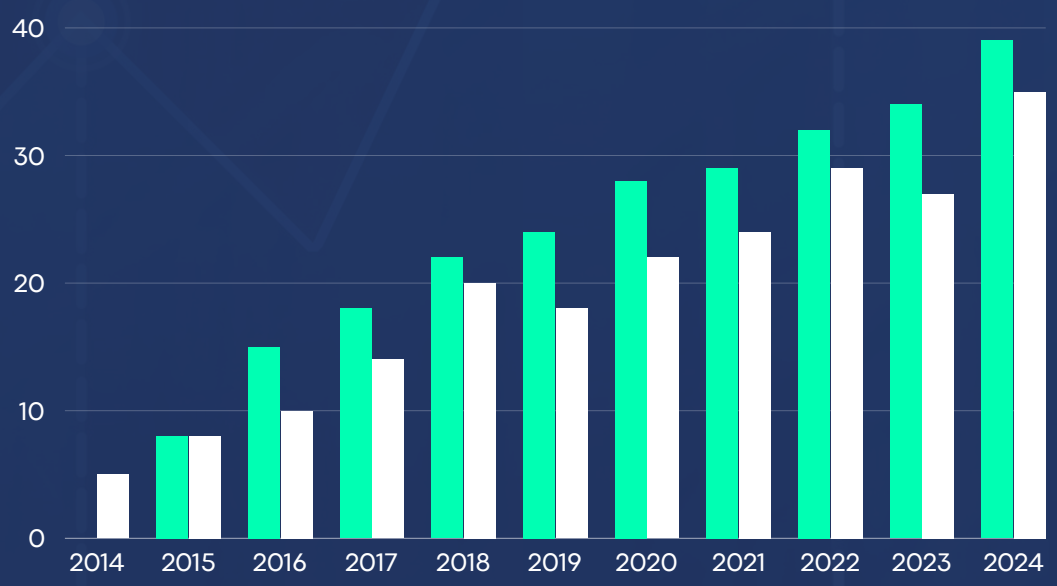
+36.6%

Second Year Growth (Increase)

+45.3%

Third Year Growth (Decrease)

-20.8%



04. Application scenarios and actual cases

4.1 Medium-term trend trading strategy

The medium-term trend trading strategy is one of the important core applications in the Freeman quantitative trading system. It aims to provide investors with effective investment signals by identifying the trend direction of prices in a longer time frame. The core requirements of this strategy include the following aspects:

Accurate identification of technical indicators

The medium-term trend strategy relies on a series of professional technical indicators (such as moving averages, trend lines, relative strength index, etc.) that can effectively capture changes in price trends. The strategy requires a clear understanding of the sensitivity and lag of these indicators and dynamically adjusts parameter settings according to the market environment.

Clarity of strategic objectives

The basic goal of a medium-term trend trading strategy is to capture gains in price trends, not just short-term fluctuations. Therefore, the design of the strategy needs to focus on the continuity and strength of the trend to avoid triggering trading signals on false breakouts or false reversals.

Rigorousness of risk management

In mid-term trend trading, capital management and stop-loss mechanisms are crucial. The strategy requires an accurate estimate of market volatility and a strict stop-loss strategy to control potential risks. In addition, the introduction of a dynamic capital allocation mechanism can help investors optimize returns under different market conditions.

Combination of multi-periodic signals

The Freeman Quantitative Trading System emphasizes the combination of multi-period signals, that is, confirming the validity of the trend through price and indicator changes in different time frames. The medium-term trend strategy requires traders to perform multi-dimensional signal verification on multiple periods (such as weekly and monthly lines) to improve the reliability of trading decisions.

4.2 High-frequency trading and intraday trading models

High-frequency trading and intraday trading mode is another core application in the Freeman Quantitative Trading System, which aims to provide investors with efficient trading solutions by quickly responding to market changes and capturing short-term fluctuation opportunities. The core requirements of this model include the following aspects:

Efficiency of system architecture:

High-frequency trading and intraday trading models require strong data processing capabilities and real-time monitoring mechanisms. The Freeman Quantitative Trading System uses distributed computing and parallel processing technology to quickly integrate and analyze massive high-frequency data (such as T+0 real-time data, high-frequency tick data, etc.) to provide real-time support for trading decisions.

High-frequency trading strategies rely on complex algorithmic models that need to be sensitive and accurate to rapid market changes. The high-frequency trading module focuses on small changes in price fluctuations and identifies potential trading opportunities through technical indicators (such as BOLL band upper rail, ATR indicator, etc.) and machine learning algorithms (such as LSTM network, random forest, etc.).

Precision of algorithm design:

Rigorousness of risk management:

The high-frequency trading model has higher requirements for the control of trading risks. The system needs to have a fast stop-loss mechanism and dynamic position management capabilities. The high-frequency trading module effectively controls potential risks and avoids major losses caused by rapid market fluctuations by setting strict stop-loss ratios, volatility filtering mechanisms, and multi-factor constraints.

4.3 Risk Hedging and Arbitrage Trading

Through a systematic quantitative model, Freeman Quantitative Trading can effectively identify and manage potential risks in market fluctuations, thereby providing investors with stable returns. This module adopts a multi-level risk control mechanism, including dynamic position adjustment, the use of hedging positions to offset market risks, and the identification of potential market vulnerabilities through multi-factor models.

In terms of arbitrage trading, the system achieves zero or low-risk profits by capturing market spreads and volatility differences. Combined with cross-market arbitrage strategies, Freeman Quantitative Trading can make full use of short-term fluctuations in different markets while reducing the impact of systemic risks. This strategy not only improves investment returns, but also provides investors with protection when the market fluctuates violently.

Through modular design and efficient algorithms, Freeman Quantitative Trading demonstrates strong adaptability and scalability in risk hedging and arbitrage trading. This dual strategy not only helps investors maintain stable returns in a complex and changing market, but also provides a solid foundation for the continuous optimization of the system.

The application of Freeman Quantitative Trading in risk hedging and arbitrage trading mainly realizes accurate identification and management of market fluctuations through quantitative models and algorithms. This module adopts a multi-level risk control mechanism, including dynamic adjustment of positions, use of hedging positions to offset market risks, and identification of potential market vulnerabilities through multi-factor models. At the same time, the system captures market spreads and volatility differences through cross-market arbitrage strategies to achieve zero or low-risk profits. Combined with efficient algorithms, Freeman Quantitative Trading can provide investors with stable returns while hedging risks. This strategy not only improves investment returns, but also significantly reduces the impact of market systemic risks, allowing investors to maintain flexible and efficient operating capabilities in complex and changing markets.

4.4 Performance and case analysis in global financial markets

The application of the Freeman Quantitative Trading System in the global financial market is particularly outstanding. Through the empirical analysis of major European and American markets (such as US stocks and European stocks) and Asian markets (such as Japanese stocks, Hong Kong stocks, and Xima), as well as the performance research of emerging markets (such as Latin America and Africa), we can clearly see the adaptability and effectiveness of the Freeman Quantitative Trading System on a global scale.

In the European and American markets, the Freeman Quantitative Trading System is mainly based on the multi-factor model, combined with the heterogeneous asset pricing theory, to capture trend trading opportunities in the market. Through the real-time processing of high-frequency data and the calculation of complex technical indicators, the system can still maintain a high winning rate in the market with high volatility.

In the Asian market, the Freeman Quantitative Trading System performs particularly well in Japanese and Hong Kong stocks. The Japanese stock market is very suitable for the multi-factor model of the Freeman Quantitative Trading System due to its strong and long bull trend characteristics. By analyzing the performance of the Freeman Quantitative Trading System in Japanese stocks, it can be found that it has significant advantages in long-term trend prediction.

In emerging markets, the Freeman Quantitative Trading System has demonstrated unique advantages over traditional investment strategies. Emerging markets are very suitable for high-frequency operations and data mining capabilities of quantitative trading systems due to their high volatility and low liquidity. Through long-term tracking of emerging markets such as Latin America and Africa, it can be found that the Freeman Quantitative Trading System is significantly stronger than traditional qualitative analysis methods in capturing market trends and optimizing investment portfolios.

The adaptability of the Freeman Quantitative Trading System in different market environments has also been empirically supported. Through the analysis of key indicators such as the drawdown rate, maximum drawdown, and annualized return of major global markets, it can be found that the stability of the Freeman Quantitative Trading System in volatile markets is much higher than that of traditional investment strategies. For example, in the volatile market caused by the energy crisis and geopolitical conflicts experienced by the global market in 2022, the Freeman Quantitative Trading System successfully reduced the maximum drawdown of the portfolio through flexible signal processing and risk management mechanisms, providing investors with a higher sense of security.

05. Future Development Direction

5.1 Integration and upgrading of multi-factor models

The Free Quantitative Trading System has formed a unique technical advantage and strategic framework in the integration and upgrading of multi-factor models. The multi-factor model is the core theoretical basis of quantitative investment. Its essence is to influence asset prices through multi-dimensional characteristics and reveal the inherent laws of asset pricing. The research and practice of the Free Quantitative Trading System in this field has formed a complete set of methodological systems. Through data mining, machine learning and statistical arbitrage technology, a multi-factor model covering multi-dimensional factors such as economic cycles, market sentiment, industry characteristics and technical indicators has been constructed.

In the integration and upgrading of multi-factor models, the Free Quantitative Trading System focuses on the following dimensions: First, the integration of emerging factors. The system not only continues the traditional market factors (such as CAPM), value factors (such as P/E, P/B) and momentum factors (such as RSI, MACD), but also introduces new factors such as network effect factors, Ledoit-Wolf style factors, and emotional factors (such as VIX, tweet sentiment) to more comprehensively capture the complexity of asset pricing. Secondly, the factors are dynamically adjusted through machine learning technology. The system uses deep learning models to automatically sort the importance of factors, and combines the factor rotation mechanism to achieve dynamic optimization of multi-factor models.

On the technical level, the Freeman Quantitative Trading System has built an autoregressive framework for multi-factor models, and further improved the model's predictive ability through time series analysis and cointegration relationships between factors. At the same time, the system combines big data and cloud computing technology to process and extract features of massive financial data in real time to ensure the training and execution efficiency of multi-factor models. In addition, the system also introduces integrated technologies for multi-factor models (such as integrated learning and factor weighting strategies) to enhance the stability and risk resistance of the model.

5.2 Cross-market collaborative optimaization and global layout

The exploration of the Freeman Quantitative Trading System in "cross-market collaborative optimization and global layout" reflects its strategic vision and technical strength in occupying a leading position in the global financial market. The core goal of this direction is to build an efficient and collaborative multi-factor model through multi-market collaborative optimization and global layout to achieve the optimal allocation and investment decision-making of global assets.

First, the system establishes a cross-market data sharing mechanism through the access of big data platform and global market data. Using artificial intelligence and big data analysis technology, it can identify the linkage and trends between different markets in the world in real time, thereby building a cross-market collaborative optimization framework for multi-factor models. The system can capture the common driving forces of different markets, such as global economic cycles, geopolitical risks, monetary policy changes, etc., thereby enhancing the global applicability of investment strategies.

Secondly, the system realizes the global layout of investment portfolios through the collaborative optimization of multi-factor models. Traditional quantitative trading focuses more on local markets, while the Freeman Quantitative Trading System breaks through geographical restrictions and builds an investment framework covering major global markets. Through the integration and optimization of multi-factor models, the system can simultaneously capture the independent risks and synergistic returns of different markets, and realize the globalization and risk diversification of asset allocation.

In addition, the system also focuses on the cross-market adaptability of investment strategies. By dynamically adjusting factor weights and strategy parameters, the system can automatically optimize the investment portfolio according to changes in the global market, ensuring stable returns in different market environments. At the same time, the system uses cloud computing and big data platforms to achieve efficient processing of multi-market data and strategy optimization, further enhancing the ability of cross-market collaborative optimization.

5.3 Real-time risk assessment and dynamic adjustment capabilities

The research and optimization direction of the Freeman quantitative trading system in the "real-time risk assessment and dynamic adjustment capabilities" mainly revolves around the following core goals: through technological innovation and algorithm optimization, improve the real-time, accuracy and stability of the system, and ensure that risk control and investment strategies can be continuously optimized in the complex and changing financial market.

5.3 Real-time risk assessment and dynamic adjustment capabilities

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Improvement of real-time risk assessment capabilities

In order to further enhance the real-time risk assessment capability, the Free People Quantitative Trading System plans to introduce advanced real-time data analysis and prediction technology. By combining high-frequency data streams (such as high-frequency trading data, social media data, etc.), the system can monitor subtle trends of market changes in real time and capture potential risk signals. At the same time, the system will optimize the risk assessment model so that it can calculate various risk indicators of the investment portfolio (such as VaR, CVaR, Sharpe ratio, etc.) faster and more accurately, and trigger the risk warning mechanism in a timely manner.

Optimization of dynamic adjustment mechanism

The Freeman Quantitative Trading System will be committed to optimizing the dynamic adjustment mechanism so that it can respond to market changes more efficiently. By introducing intelligent backtesting and online learning technology, the system can continuously learn and adjust strategy parameters in actual transactions to adapt to dynamic changes in the market. In addition, the system will explore dynamic adjustment algorithms based on reinforcement learning, and find the optimal investment strategy and risk control path through simulation and experimentation.

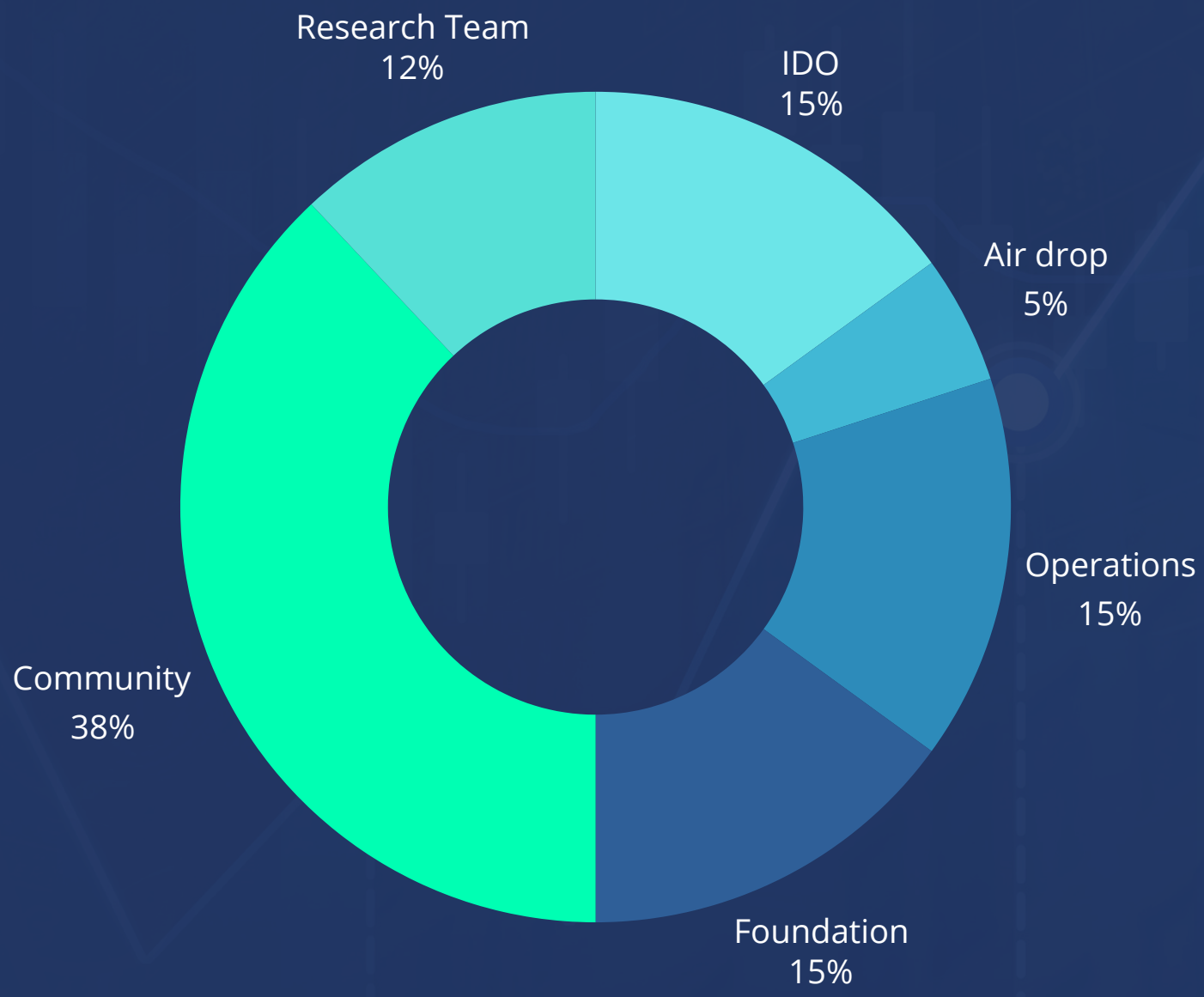
Construction of user interaction and community sharing platform

In order to enhance the user value of the system and the construction of the ecosystem, the Free People Quantitative Trading System plans to develop a more open and interactive user interaction platform. Through this platform, users can not only monitor the performance of their investment portfolios in real time, but also share investment experience and strategies and interact deeply with the system. At the same time, the system will build a community sharing platform for publishing market analysis reports, strategy inspirations and investment cases, thereby further enhancing the social influence and user stickiness of the system.

5.4 Token Distribution Mechanism

FQAI is the ecological token of the Freeman Quantitative Trading System, with a total issuance of 2.1 billion. Through a unique repurchase and destruction mechanism, the repurchase and destruction mechanism will continue as the project ecology goes online, aiming to increase the value of tokens through scarcity. FQAI, as the core of the platform's economic ecology, runs through all transactions, incentives and governance activities, and is the economic link connecting users, creators, developers and investors.

- [Token name]: FQAI
- [Total issuance]: 600 Million Pieces



5.4 Token Distribution Mechanism

- [Token name]: FQAI
- [Total issuance]: 600 Million Pieces

IDO：15%

It is obtained through subscription and allotment to market investors. After listing, investors can sell at any time without any lock-up restrictions.

Air drop：5%

It is obtained through subscription and allotment to market investors. After listing, investors can sell at any time without any lock-up restrictions.

Operations：15%

The tokens will be locked for one year after listing, and 2% can be released every quarter after one year.

Foundation：15%

The tokens will be locked for 2 years after listing, and 1% will be released every quarter thereafter, mainly for public relations and rewarding users and institutions that have contributed to the platform.

Community：38%

Community members will receive incentive tokens by participating in platform activities, sharing resources, etc.

Research Team：12%

The shares will be locked for 6 years after listing and cannot be transferred during this period. All technological achievements will be controlled by the scientific research team.

06. Conclusion

6.1 System support for investment decisions in the new era

In today's investment environment, investors are facing new challenges of intelligence, personalization and globalization. Freeman Quantitative Trading provides investors with new decision-making tools through the in-depth application of technological innovation. For example, the system uses AI and machine learning technology to adaptively optimize investment strategies based on market data and achieve intelligent investment decisions. At the same time, Freeman Quantitative Trading's personalized investment capabilities can tailor the most suitable asset allocation plans for different investors through customized strategies. In addition, the system also performs well in global layout, and can effectively identify and utilize cross-market opportunities to increase investment returns. These features not only help investors improve decision-making efficiency and returns, but also significantly reduce the risks caused by emotional decisions.

6.2 Outlook for the Future Development of Financial Markets

Looking ahead, Freeman Quantitative Trading will play a key role in the following aspects. First, its multi-factor model and heterogeneous asset support will continue to be optimized, driving continuous innovation and improvement of investment strategies. Second, the continuous advancement of technology and the improvement of the ecosystem will provide the system with stronger support capabilities, enabling it to occupy a broader influence in the financial market. Finally, Freeman Quantitative Trading will make continuous efforts in investor education and community building, providing in-depth resources and support for new investors. Through these efforts, Freeman Quantitative Trading will not only be a tool, but also an innovative force leading the development of the financial market, promoting the intelligent and sustainable development of the investment field.

07. Disclaimer And Risk Tips

7.1 Disclaimer And Risk Tips

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