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Research on Optimization and Business Model Innovation of Financial Intelligent Investment Advisory System Based on AI and Big Data

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Abstract: Against the backdrop of global economic expansion and diversified wealth management demands, investors are increasingly seeking diversified asset allocation beyond traditional products, promoting the integration of risk return preferences and scientific investment portfolio design with professional advisory services. Fintech and artificial intelligence technologies are reshaping the securities industry landscape, and intelligent investment advisory platforms are showing differentiated development globally due to regulatory differences. Although some markets prohibit direct agency trading, institutions still achieve asset allocation functions through standardized products such as public funds. This study focuses on the strategic transformation of the intelligent investment advisory business of a leading securities institution. By analyzing the global industry model, macro environment, and internal and external resources of the enterprise, it explores the business optimization path under technological empowerment. The research adopts literature analysis method to sort out the achievements in the field of financial technology and intelligent investment advisory, uses comparative analysis method to compare the differences in different market policy environments and typical product performance, and uses case study method to deeply analyze their operational status and internal and external challenges. The results indicate that AI and big data technologies can significantly improve the accuracy of customer profiling and the efficiency of portfolio construction, but the business is still limited by issues such as fixed scenario strategies, insufficient product innovation, and differentiated risk return performance. To overcome bottlenecks, institutions need to innovate in four areas: building hybrid AI models to support cross scenario strategy combinations; Introduce derivative and thematic investment tools; Develop dynamic performance visualization tools to enhance transparency; Improve the framework for network security and data governance. The study using the institution's "worry free investment" platform as a case further reveals that an adaptive risk control system and differentiated charging mechanism are key to ensuring sustainable development. This study provides a practical framework for technology integration and business model innovation in the intelligent investment advisory industry, and provides empirical reference for regulatory agencies to balance innovation incentives and investor protection.

1 Introduction

With the expansion of the global economy and the accumulation of residents' wealth, the demand for wealth management is showing a diversified trend, driving investors to shift from single asset allocation to financial product portfolio investment such as funds and securities. Professional investment advisory services have emerged as a result, providing scientific asset allocation solutions by integrating clients' risk return preferences. In recent years, the innovation of financial technology and artificial intelligence technology has driven the upgrading of the service model of the securities industry, and the global intelligent investment advisory market has shown explosive growth. Venture capital enterprises, Internet financial platforms and traditional financial institutions have deployed in this field. Although some countries' regulatory frameworks explicitly prohibit institutions from directly acting as agents for securities trading, robo advisors still achieve asset allocation functions through standardized products such as public funds. Some leading institutions have obtained regulatory authorization to execute fund portfolio strategy recommendations and trading operations based on customer commissions. In this context, a leading securities institution urgently needs to explore business model innovation empowered by financial technology in the process of digital transformation and wealth management business upgrading. Although the current international intelligent investment advisory industry is developing rapidly, its business operation model is not yet mature, and the industry faces multiple challenges such as compliance, service homogenization, and technological adaptability. This article takes the intelligent investment advisory business of the institution as the research object, and through horizontal comparison of typical industry models, combined with macro environment analysis and internal and external resource evaluation of the enterprise, systematically explores the practical path of the development of the intelligent investment advisory industry. The research adopts the literature review method to sort out the achievements in the global financial technology and intelligent investment advisory fields, and construct a theoretical framework; Using comparative analysis method, compare the differences in macro environment such as policies and markets among intelligent investment advisory companies in different countries, and analyze the performance and advantage gaps between the platform under this institution and other typical products; Finally, the case study method is used to deeply analyze its operational status, internal and external environment, propose business optimization ideas and implementation paths, provide practical guidance for the sustainable development of the industry, and provide empirical basis for regulatory policy optimization and market regulation construction.

2 Correlation theory

The foreign intelligent investment advisory business model is technology driven and reconstructs the financial service chain through algorithm optimization, big data analysis, and artificial intelligence technology. Its methodology is mainly reflected in two aspects: firstly, platforms represented by Betterment and Wealthfront in the United States adopt online fully AI driven services or personalized asset allocation suggestions, reduce service costs through low threshold and automated processes, and achieve profitability by charging management fees or service fees; Secondly, the global market combines dynamic asset allocation models with standardized products such as ETFs to construct diversified investment portfolios. The results are reflected in the leading position in the US market, rapid expansion in the European market, and potential release in the Asian market. The global asset management scale is expected to exceed $1.4 trillion by 2022, with over 120 million users. In terms of advantages, technology driven service rates have been reduced to 0.15% -0.50%, breaking through geographical and asset barriers, and enhancing customer

experience through personalized services. However, the limitations are also significant: technological dependence may exacerbate systemic risks, such as implicit risks in the transformation of traditional institutions; Excessive pursuit of automation may weaken the service stickiness of high net worth clients; In addition, the volatility of financial markets, insufficient data accumulation, and irrational behavior of investors all constrain its effectiveness, and it is necessary to make up for the technological shortcomings through human-machine collaboration models.

3 Research method

3.1 FinTech Smart Investing and Wealth Research

Fintech integrates economy and technology, relying on technologies such as big data, cloud computing, and blockchain to reconstruct the financial industry through automation and intelligence, and promote the development of inclusive finance. Digital wealth management, driven by technology, has built a full process value creation system from customer service to product development, achieving intelligent and personalized financial services. This model focuses on technology sensitive and convenient service seeking financial customers, providing transparent information and standardized services through digital interactive channels to achieve real-time response across time and space. In the securities industry, digital wealth management not only expands customer coverage, improves business efficiency, and optimizes service experience through financial technology, but also derives refined digital marketing and hierarchical service management models, serving different levels of customer groups with differentiated strategies. Its business scope usually covers core areas such as securities brokerage, financial product distribution, and capital intermediation. As a typical application of digital services, robo advisors obtain basic investor data and risk preference information through online research, use intelligent algorithms and financial modeling to generate optimal asset allocation plans, and dynamically adjust strategies based on actual return feedback. Compared to traditional manual investment advisors, its differentiated features are reflected in two aspects: in terms of service mode, intelligent investment advisors rely entirely on online platforms for operation, replacing manual data processing and decision support with technology; In terms of customer coverage, breaking down the exclusive service barriers for high net worth customers with the advantage of inclusiveness, and achieving mass service coverage. Its core advantages include: reducing subjective decision bias through algorithm neutrality, relying on powerful computing power to achieve precise transformation of data variables and model optimization, thereby forming a better balance between returns and risks; At the same time, by using automated services to break through the limitations of labor costs, we can achieve large-scale customer coverage and efficient operations, significantly reducing service costs and improving service efficiency compared to traditional models.

3.2 Financial Theory and Application of Digital Technology

The modern portfolio theory was proposed by Markowitz and laid the theoretical foundation for the field of securities investment. This theory is based on two core principles: the principle of diversified investment emphasizes that investors should pay attention to the balance between expected returns and risks. By constructing a diversified investment portfolio, investors can maximize returns at a given risk level or minimize risks at a given return level; The principle of minimizing correlation coefficient states that by selecting assets with lower correlation coefficients for combination, non systematic risk can be effectively reduced. This theory further distinguishes between individual risk and systemic risk, clarifying that although diversified investment can reduce individual risk, it cannot avoid systemic risk, while emphasizing the importance of market

efficiency and investor risk aversion assumptions. The long tail theory reveals that in the context of market expansion and channel diversification, the "long tail" demand outside the "top" products in the traditional demand curve may converge to form considerable economic value. For financial institutions, serving long tail customers has become an important driving force for the development of digital wealth management. The application of financial technology, especially big data analysis technology, effectively solves the problems of high data acquisition costs and difficult demand mining for long tail customers. Through precise profiling and customized services, it meets the financial needs of this group. The big data theory defines a massive, diverse, high-speed, and low value density data set, and its 4V characteristics (Volume, Variety, Velocity, Value) are widely used in securities digital wealth management, covering multiple aspects such as customer profiling, precision marketing, product planning, and risk management, improving service efficiency and customer experience.

3.3Tech-Driven AI Investing Transforms Services

As an innovative application in the field of financial technology, robo advisors integrate big data, cloud computing, and artificial intelligence technologies to achieve intelligent and automated investment processes. Its prosperity stems from various factors: traditional manual investment advisory services face problems such as tight human resources, high costs, and efficiency bottlenecks, while technological progress provides efficient solutions for the financial sector. Compared to traditional services, robo advisors have demonstrated significant advantages, including low-cost operation, low threshold services, convenient operation, and high transparency. The current intelligent investment advisory service model mainly includes independent advice, one click wealth management, and hybrid recommendation. Its core service elements include precise customer profiling, financial professional capability support, intelligent analysis of customer intentions, 24/7 intelligent interaction, and information service capability upgrades. These elements collectively drive the widespread application and model innovation of robo advisors in the field of wealth management.

4 Results and discussion

4.1 Overview of HT Securities' "worry free investment" intelligent investment advisory service

As an international comprehensive securities institution, HT Securities Company covers five major modules: international finance, investment management, institutional services, investment banking, and wealth management. Its wealth management business is centered around securities brokerage and financial product sales. In the field of brokerage services, the company integrates online and offline resources through the "Zhangle Wealth Pass" platform, combines CRM and MOT management systems to achieve intelligent matching of customer needs, and relies on investment advisory teams to provide personalized wealth management strategies. The monthly active users have exceeded seven million. In terms of financial product sales, the company continues to optimize its product pool and marketing system, strengthens technical support through the acquisition of AssetMark in the United States, and promotes the transformation of wealth management. Its fund intelligent investment advisory brand "worry free investment" is based on a fully entrusted model, targeting investors' three major pain points of "difficult fund selection, difficult allocation, and difficult holding". It has designed 16 strategies covering three major scenarios: idle money management, inflation hedging, and income enhancement. Among them, the scenario of "managing idle money" focuses on stable management of short-term funds; The scenario of "outperforming

inflation" pursues low volatility returns through quantitative models; The "pursuit of returns" scenario aims to achieve medium to long-term excess returns through asset diversification and dynamic rebalancing. The service strengthens investor education throughout the entire process, improves customer experience through risk disclosure before investment, strategy matching during investment, and continuous companionship after investment, aiming to solve the problem of loss of returns caused by emotional operations in traditional fund investment.

4.2HT Securities' 'Carefree Investment' Model Advantages

The core advantages of HT Securities' fund intelligent investment advisor "worry free investment" are reflected in two aspects: firstly, rich portfolio selection, especially in the pursuit of return scenarios, providing six major allocation combinations of equity positions ranging from 15% to 100%, meeting the needs of customers with different risk preferences through clear risk stratification; Secondly, its historical performance has been stable. Compared with its peers, as of March 10, 2022, its idle money management portfolio has achieved low drawdown and leading returns, outperforming the inflation scenario portfolio with excellent drawdown control. Its pursuit of return scenario portfolio has a better drawdown ratio than most peer products, reflecting strong risk adjusted return ability. Please refer to Figure 1 for specific performance comparison

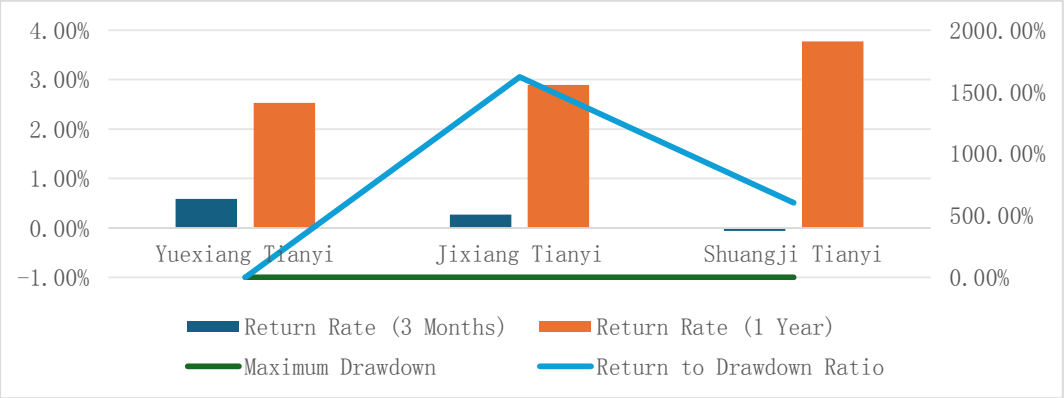

Table 1 "Worry Free Investment" Idle Cash Scenarios vs. Industry Peers

The performance comparison of "Shouxin Investment" in the inflation victory scenario shows that among peer strategies, the "Shougu Jiying" portfolio has shown moderate annual returns in the past year, while also having relatively stable withdrawal control. In the pursuit of higher returns, the investment portfolios of "Zhangle Qimingxing" and "Zhangle Guangmingxing" have demonstrated competitive performance. Specifically, "Zhangle Qimingxing" has achieved above average returns in the past three months and performed better than its peers on an annual basis, while "Zhangle Guangmingxing" has ranked among the top in terms of returns in the past three months with a lower maximum withdrawal rate, indicating effective volatility management.

4.3Comparative analysis of evaluation effects

HT Securities has demonstrated significant technology driven advantages in the field of fund intelligent investment advisory. Its "worry free investment" business deeply integrates AI and big data technology, accumulates a massive user base through the "Zhangle Wealth Pass" APP, and continuously optimizes the intelligent investment system to accurately identify customer needs and provide personalized investment solutions. However, "worry free investment" still faces multiple challenges in its business development, such as significant qualitative competition, market product

convergence, and lack of personalized services, which makes it difficult to achieve the "thousand people, thousand faces" goal; The profit model is single, relying on the advantages of agent wealth management channels, and the income from investment advisory fees is limited; The product needs to be enriched and innovated, and more diversified financial instruments need to be introduced; The positioning of the strategy mode is unclear, and the differences between the 16 strategies are not significant, making it difficult for investors to make a choice; The selection of strategies is limited, and only one strategy can be chosen in a single scenario, which cannot meet the diversified investment needs; Actual returns fell short of expectations, and most strategies did not achieve their display targets in terms of actual returns; And the system functions need to be improved, such as unclear display of position adjustment transactions, which affects customer experience. To address these challenges, HT Securities plans to use AI and big data technology for system optimization and business model innovation, including breaking the limitations of scenario strategies, promoting product diversification, and allowing customers to invest multiple times per household; Upgrade investment models and strengthen network security protection; Improve data collection, warning mechanisms, and customer feedback systems to enhance transaction security and efficiency; Establish a full business chain data center [9], develop risk management systems, and establish an online and offline linkage service mechanism; And establish a mechanism to ensure the effectiveness of strategies and ensure the stable operation of intelligent investment advisory services.As shown in Table 1

Table 1 Actual returns of each strategy

Strategy Name	3M Return	1Y Return	Max Drawdown	Return/Drawdown Ratio
Daily Enhanced Income	0.60%	-	-	-
Monthly Enhanced Income	0.59%	2.53%	0.00%	-
Quarterly Enhanced Income	0.27%	2.89%	0.18%	16.21
Bi-Quarterly Enhanced Income	-0.06%	3.77%	0.63%	6.04
Domestic Stable Income	-2.32%	0.79%	2.81%	0.28
Domestic Aggressive Income	-8.81%	-2.58%	9.88%	0.26
ZL Star All Star	-14.58%	-6.09%	16.11%	0.38
Steady Growth	-1.55%	1.73%	1.89%	0.92
Progressive Stability	-2.97%	0.59%	3.43%	0.17

The actual returns of each strategy were demonstrated, further highlighting the need for optimization.

5 Conclusion

The research conclusion indicates that in the context of rapid development of financial technology, optimizing financial intelligent investment advisory systems and innovating business models based on AI and big data has become the key to enhancing the competitiveness of securities

companies. By deeply integrating AI algorithms and big data technology, securities companies can build intelligent investment systems, accurately identify customer needs, provide personalized asset allocation solutions, and expand the boundaries of wealth management services. However, the current fund intelligent investment advisory business still faces challenges such as regulatory compliance, insufficient product diversification, and the need to improve fee transparency. To this end, securities companies need to break through the limitations of scenario strategies, promote product diversification, and draw on international experience to expand into scenarios such as daily life and elderly care. At the same time, by upgrading investment models, strengthening network security protection, and improving data collection and warning mechanisms, transaction security and efficiency can be enhanced. In addition, establishing a full business chain data center, developing a risk management system that adapts to business development, forming an online and offline linkage service mechanism, and establishing a strategy effectiveness guarantee mechanism are important guarantees for ensuring the stable operation of intelligent investment advisory services. This study takes HT Securities' "worry free investment" as an example to explore the optimization path of intelligent investment advisory business, providing useful reference for the industry. It also points out that future research can further focus on the transformation of securities wealth management business, differentiated development models of fund investment advisory business, and the coordinated development of fund intelligent investment advisory and new businesses.

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