

# *Research on the Advantages and Risks of Robo-Advisor under the Background of Internet Finance Development*

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**Abstract:** With the rapid development of Internet technologies, Robo-Advisor, a new type of financial service pattern, has gained wide attention and application worldwide. Robo-Advisor could provide investors with more personalized and specialized portfolio advice and asset allocation solutions by utilizing technical means such as big data, artificial intelligence, etc. However, under the background of the development of the Internet, Robo-Advisor has also faced a variety of risks, including technology risk, market risk, credit risk, etc. In this paper, the advantages and risks of Robo-Advisor are systematically analyzed, and corresponding optimization suggestions are put forward.

## **1. Introduction**

Under the background of Internet finance development, the development of Robo-Advisor ushered in a new opportunity. Robo-Advisor is the "private bank" of the public customers, which has the advantages of solving the issue of interest conflict, inclusiveness, and reduction of labor costs. Robo-Advisor could improve service efficiency and reduce the marginal cost by utilizing algorithms and models. Besides, it could also serve more middle-class and customer groups with lower annual income that traditional investment advisors would not serve before<sup>[1]</sup>. However, it also has some drawbacks. The Robo-Advisor in financial institutions should keep up with industry trends and the algorithms and operation modes in Robo-Advisor should be updated and adjusted, so as to provide customers with better services.

## **2. An overview of Robo-Advisor**

### **2.1 Basic Connotation**

Intelligent investment adviser refers to the investment and advisory platform that could provide intelligent and personalized investment advice to clients through algorithms. In industry practices, Robo-Advisor is more functional and could perform more complex financial and investment tasks in an intelligent manner. Robo-Advisor is able to provide one-stop services from financial planning, financial and investment advice to automated investment through algorithms, so as to achieve personalized, full-life-cycle wealth management for customers<sup>[2]</sup>. Robo-Advisor could complete the entire wealth management process through algorithms, providing one-stop wealth management solutions for mass customers with relatively simple financial investment needs, especially long-tail

customers. In addition, the algorithm of Robo-Advisor could maximize returns for customers within the scope of controllable risks.

## 2.2 Key Features

### (1) Low marginal cost for service providers

As the marginal cost of online Robo-Advisor planning is low, it would be possible for service providers of Robo-Advisor to serve long-tail customers at low cost. Robo-Advisor is able to carry out in-depth analysis and research of the financial market through technical means. It could comprehensively understand an investor's investment behaviors and risk preferences by utilizing technical means, such as big data and artificial intelligence, so as to provide investors with more personalized and professional investment portfolio recommendations and asset allocation solutions.

### (2) High standardization

Since Robo-Advisor mainly provides clients with portfolio advice, execution, tracking, and other services through the system, the process of providing services to the same type of clients could be highly standardized. At the same time, the investment portfolio, investment information, and fees are completely transparent. Besides, the investment process is completed automatically, objectively, and fairly. Robo-Advisor would disclose sufficient information on investment philosophy, potential selection of financial products, charged fees, etc. Customers could view investment information anytime, anywhere.

### (3) Personalized Customization

Robo-Advisor could provide redundant customized scenarios based on diversified financial goals. It could also personalize the best investment portfolio according to a customer's risk preference and investment period. Besides, its system could provide customized services for the customer based on the characteristics of the customer profile and the property of the funds, reaching the goal of “customization for each individual”.

## 3. Advantages of Robo-Advisor under the Background of Internet Finance Development

### 3.1 Being Beneficial for Solving the Issue of Interest conflict

The investment consultants of traditional wealth management institutions are mainly sales-oriented. Meanwhile, those financial advisors sell products to customers and get the corresponding performance and commission. Therefore, financial advisors are prone to cause the problem of interest conflict when conducting financial investments for mass clients. The financial returns of clients are not only related to the returns of the products, but also related to the investment period, liquidity needs, and investment rates, etc. However, these factors do not have much to do with the salary assessment of the financial advisors, and are often ignored in the marketing process as a result. In the context of the Internet, Robo-Advisor would pay close attention to allocation. Firstly, the investment management committee would decide the asset classes to be invested according to the current economic and financial market situations. The next step is to select suitable ETFs and establish a pool of ETF products based on the selected asset classes. Then various portfolios with different risk levels are established based on modern portfolio theory to maximize the expected return after deducting rates and taxes under each risk level. However, the Mean-Variance Optimization (MVO) model is comparatively sensitive to the input values of expected return, asset volatility, and correlation coefficients between assets. Therefore, Robo-Advisor would usually use the Black-Litterman model (BL model). Finally, the Robo-Advisor would assess the client's risk level based on the client's situation and objectives. Furthermore, based on the risk level, the appropriate portfolio would be selected among the multiple portfolios assembled. Robo-Advisor would monitor the portfolio

performance in real time, and adjust the positions at the right time. During the whole process, there may be a conflict of interest when the investment team establishes the product pool, but the configuration process is based on algorithms, thus solving the issue well. In addition, excellent foreign Robo-Advisor would disclose the method of establishing the product pool and the profit model to their clients, minimizing the possibility of interest conflict during the process of selecting products (As shown in figure 1).<sup>[3]</sup>

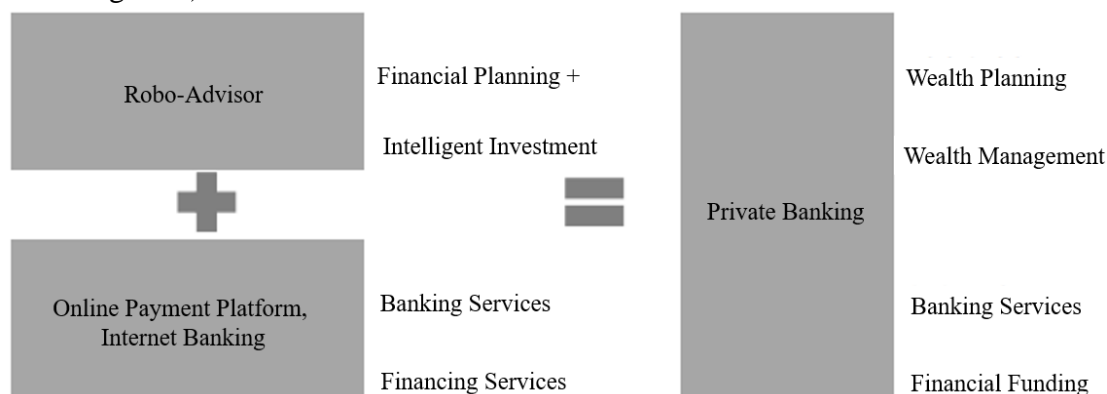


Figure 1: Intelligent Investment Advisor and Private Banking Service Model<sup>[4]</sup>

### 3.2 Being Inclusive

At present, Robo-Advisor could already realize intelligent financial planning and intelligent investment, with the aim of enabling mass customers to enjoy private banking wealth management services as high-net-worth (HNW) clients do, which put the clients at first priority. However, such services would be achieved at a low cost. The financial planning by Robo-Advisor is similar to the wealth planning of HNW clients. The life goals of mass clients are relatively simple and less personalized, and could be predicted and planned through technology. Therefore, the financial planning of Robo-Advisor is a scaled-down version of private bank wealth planning, which helps ordinary customers understand their assets and liabilities, provide optimal financial solutions, plan for future consumption, repayment, savings and investment, and ultimately successfully complete the big events in their life cycles. After the Robo-Advisor generates financial planning, customers could manage their own finances and investments according to the financial plan and asset allocation plan generated by the Robo-Advisor platform, or they could fully entrust the Robo-Advisor platform to carry out automated financial investment. Some Robo-Advisor platforms also provide intelligent trading functions to provide stock and bond selection recommendations and portfolio optimization solutions for mass customers with strong investment autonomy, serving customers with different needs in a layered business model. Such a model of the Robo-Advisor platform is a favorable replica of the private bank's model of serving HNW clients. There are three types of investment services provided by private banks, namely discretionary investment, advisory investment and self-directed investment. In addition to discretionary investment and self-directed investment, some Robo-Advisor platforms also provide manual investment consulting services for clients in need, making them "private banks" for the general public. After the Robo-Advisor is connected with the banking business, it has all the functions of a private bank.

### 3.3 Reducing Labor Costs and Facilitating Layered Management

Through the Robo-Advisor platform, financial institutions such as foreign investment management companies and banks could realize the layered management of customers. Long-tail customers are

left to the machine investment adviser while the affluent customers and HNW customers are served by the manual financial advisor, making the services more personalized and more professional. Before the emergence of Robo-Advisor, the manual financial advisor had to serve both long-tail customers and some affluent customers. The service was sales-oriented attaching importance to products but did not pay attention to configuration. Such a service did not play the role of life finance and investment finance actually. However, after the Robo-Advisor is applied, investment and finance could be completely realized by the Robo-Advisor. Specifically, the life finance needs of the long-tail customers are relatively simple, which could be realized through goal-based investment (as shown in the figure below). Foreign Internet companies have also developed intelligent financial planning functions in the Robo-Advisor in order to make it more personalized, which could meet the financial needs of long-tail customers. On the other hand, manual financial advisors could focus on improving the professionalism of investment advisors and financial management, so as to enhance the service capability for affluent and HNW clients. Robo-Advisor could reduce labor costs while promoting the client layered business of wealth management institutions, aiming at improving client experience (As shown in figure 2).

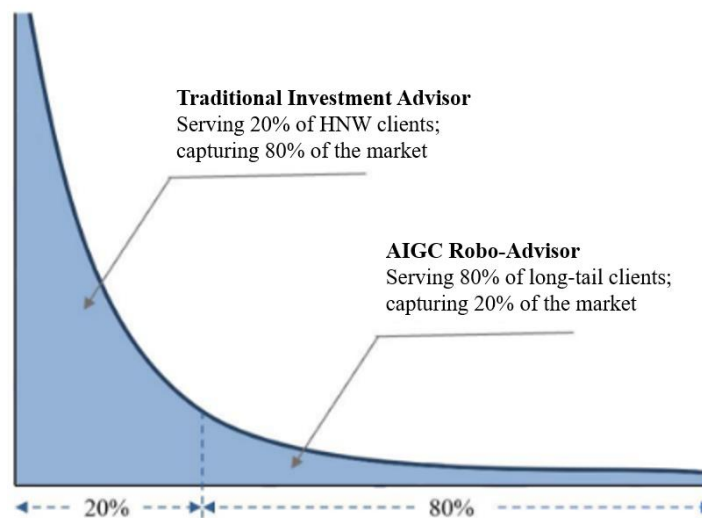


Figure 2: AIGC enables Robo-Advisor to meet the needs of long-tail clients<sup>[5]</sup>

## 4. Risks Analysis of Robo-Advisor under the Background of Internet Finance Development

### 4.1 Technical Risks

The technical risks of Robo-Advisor mainly come from the following aspects. The first risk is the system security risk, the security and stability of the Robo-Advisor is directly related to the interests of investors. If the system fails or is hacked, it may lead to the leakage or loss of important data of investors. The second risk is data risk. Robo-Advisor relies on big data and artificial intelligence technology for investment analysis and decision-making. If there are defects in data quality, such as incomplete, inaccurate or biased data, it would cause a negative impact on investment decisions. The third one is the risk of technological updates. Internet technology is developing rapidly. If the system for Robo-Advisor fails to be updated or upgraded timely, it may lag behind the development of the market and affect the investment results. Therefore, it is necessary to strengthen system security protection and conduct regular security testing and vulnerability repair. We should establish a perfect data quality management and control mechanism to ensure the accuracy and completeness of data. besides, the system for Robo-Advisor should be regularly upgraded and updated to adapt to the market development<sup>[6]</sup>.

## 4.2 Market Risks

On the one hand, the investment market would be inevitably affected by various factors such as the global economy and policies. As a result, market fluctuations may lead to investor losses. Moreover, as the Robo-Advisor market becomes more mature, the competition would become more intense. The behavior of competitors may hurt the investment strategies and results of Robo-Advisor. In addition, market manipulators may take advantage of its weaknesses to conduct improper transactions, undermining the fairness and stability of the market. Since investment decisions are made based on a large amount of data and algorithms, if there are defects in the data or algorithms, errors may occur in investment decisions. Therefore, it is necessary to establish a perfect market risk assessment and control mechanism, monitor and respond to market fluctuations in a timely manner, monitor and analyze the behavior of competitors to formulate appropriate competitive strategies, and strengthen cooperation with regulatory agencies to crack down on market manipulation.<sup>[7]</sup>

## 4.3 Credit Risks

First, investor credit risk. Investors may not be able to fulfill their investment decisions on time for their own reasons or trigger a default due to investment failure after obtaining investment advice, bringing losses to the Robo-Advisor. Second, financial institution credit risk. The financial institution cooperating with the Robo-Advisor may have credit problems, such as failing to provide funds on time or failing to fulfill investment services, which affects the investment results of the Robo-Advisor. Third, credit risk of advisory organizations. If the external advisory organizations relied on by the Robo-Advisor have credit problems, such as providing inaccurate investment advice, the investment results of the Robo-Advisor may be negatively affected. This can be achieved by conducting credit assessment and classification management of investors, formulating different investment strategies for investors with different credit ratings, conducting credit assessment and management of financial institutions and consulting agencies before cooperation, and selecting agencies with good credit for cooperation. We should also establish a favorable credit risk management and control mechanism, and carry out timely monitoring and responding to credit risks<sup>[8]</sup>.

## 5. Suggestions for the Development of Robo-Advisor under the Background of Internet Finance

### 5.1 Enhancing Information Transparency and Enrich Investment Education Content

Robo-Advisor, a platform that serves clients by machines entirely, transparent information disclosure is also important. One of the disadvantages of online services is that customers could only solve problems online or by telephone. Asset allocation and financial investment involve a certain professional knowledge. If the online information disclosure is not transparent, or customers could not find the information they want to know, or there is too little investor education content to explain some specialized issues for customers, it is difficult to gain the trust of customers, increasing the difficulty of obtaining new customers. Even for some Robo-Advisor platforms with offline sites, if opaque disclosure of information or investment education is not done well, it is not conducive to gaining online customers, and could only rely on offline promotion to obtain customers. Therefore, transparent information disclosure and rich investment education content are equally important for Robo-Advisor, which is a completely online-based service platform.

### 5.2 Combining Online and Offline

Client layered business is reflected not only in online services, but also in offline services. Before

the arrival of the era of powerful artificial intelligence, intelligent services could not completely replace manual services, and some complex tasks still need to be performed manually to achieve ideal results. Therefore, in the service industry, the online model does not meet all the needs of customers, and the establishment of business departments and offline sites is still important. The layout of offline sites, which complements the Robo-Advisor, could serve customers better. Meanwhile, it would also increase costs. Therefore, we need to balance the relationship between the costs and benefits of setting up offline sites to develop a Robo-Advisor business. For institutions that have their own offline sites, carrying out the Robo-Advisor business would own certain advantages.

### 5.3 Matching Investment Threshold with Target Client Group

The advantage of client layered business is that it could meet the needs of different customers. In addition to the need to stratify services according to the target client group, the investment threshold also needs to be matched with the target client group. Some Robo-Advisor platforms raise the investment threshold, which will exclude part of long-tail customers who have the need. At the same time, it is not conducive to attracting customers who hold the attitude of "try it out" at the beginning. Therefore, layered business should stratify not only the service, but also the investment threshold.

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