Research on the Impact of Financial Advisory Services on the Diversification Level of Household Portfolios

Siyan Zheng*

Agricultural Bank of China, Shantou Branch, Shantou, China

*Email: zhengsiyann@163.com

Abstract

With the continuous improvement of household financial asset scale and the increasing complexity of financial markets, household portfolio diversification has become an important means to reduce investment risks and optimize asset allocation. Financial advisory services, as a professional financial intermediary service, play a crucial role in guiding households to make rational investment decisions and improving portfolio diversification. Based on the theory of modern portfolio, behavioral finance and financial intermediation, this paper selects the micro data of household financial survey to empirically test the impact of financial advisory services on the diversification level of household portfolios. The research results show that: financial advisory services can significantly improve the diversification level of household portfolios, and this promotion effect has heterogeneity among households with different financial literacy, asset scale and risk preference; the mechanism test shows that financial advisory services can improve household portfolio diversification by alleviating household behavioral biases and improving household financial literacy. Finally, based on the research conclusions, this paper puts forward policy suggestions to optimize financial advisory services and guide households to achieve scientific portfolio diversification. This study enriches the research on the factors affecting household portfolio diversification and provides theoretical and empirical support for the development of financial advisory industry and the improvement of household financial decision-making ability.

Keywords

Financial Advisory Services, Household Portfolios, Diversification Level, Behavioral Bias, Financial Literacy.

1. Introduction

1.1. Research Background

In recent years, with the rapid growth of China's household disposable income and the continuous enrichment of financial products, household financial assets have shown a steady growth trend, and the demand for rational allocation of assets has become increasingly strong. Portfolio diversification, as one of the core principles of modern investment theory, means that households allocate their financial assets to different types of assets (such as stocks, bonds, funds, deposits, etc.) to reduce unsystematic risks and obtain stable investment returns. However, due to the limitations of household financial literacy, information asymmetry and behavioral biases, many households have problems such as single asset allocation, excessive concentration of assets in a certain type of financial product, and insufficient diversification, which not only increases the investment risk of households, but also reduces the overall efficiency of asset allocation[1].

Financial advisory services, as a professional service that provides personalized financial planning, investment advice and asset management for households, can effectively make up for the deficiencies of households in financial knowledge and investment experience, help households establish a scientific investment concept, and guide households to carry out diversified asset allocation. In the context of the continuous deepening of financial market reform and the increasing demand for household financial services, the role of financial advisory services in promoting household portfolio diversification has become increasingly prominent. However, at present, the development of China's financial advisory industry is still in the initial stage, and there are problems such as uneven service quality, imperfect regulatory system and insufficient household recognition[2-4]. Therefore, it is of great theoretical and practical significance to systematically study the impact of financial advisory services on the diversification level of household portfolios, clarify the action mechanism and heterogeneous characteristics, and put forward targeted policy suggestions.

1.2. Research Significance

From the theoretical perspective, this study enriches the research on the factors affecting household portfolio diversification. Existing studies mostly focus on the impact of household demographic characteristics (age, education level, income), financial literacy and risk preference on portfolio diversification, while the research on the impact of financial advisory services, an external professional service, on household portfolio diversification is relatively insufficient. This paper takes financial advisory services as the core explanatory variable, explores its impact on household portfolio diversification and its mechanism, which helps to improve the theoretical system of household finance and enrich the research results of financial intermediation theory[5-7].

From the practical perspective, this study can provide practical guidance for the development of financial advisory industry and the optimization of household asset allocation. For financial advisory institutions, the research conclusions can help them clarify the service focus and improve the service quality, so as to better meet the diversified financial needs of households; for households, it can help them recognize the role of financial advisory services, rationally use professional advisory services to optimize their portfolio allocation, and reduce investment risks; for regulatory authorities, it can provide a reference for formulating relevant policies to standardize the development of financial advisory industry and promote the healthy development of household finance[8-10].

1.3. Literature Review

1.3.1. Foreign Literature Review

Foreign research on financial advisory services and household portfolio diversification started earlier, and has formed a relatively rich research results. Early studies mainly focused on the correlation between financial advisory services and household investment behavior. For example, Bodie et al. (2009) found that financial advisory services can help households reduce investment errors and improve the rationality of asset allocation. With the deepening of research, scholars began to pay attention to the impact of financial advisory services on portfolio diversification. Campbell (2016) used the micro data of U.S. household financial survey to find that households using financial advisory services have a higher level of portfolio diversification, and the proportion of assets allocated to stocks, bonds and other risky assets is more reasonable[11].

In terms of the action mechanism, scholars have put forward two main views: one is that financial advisory services can alleviate household information asymmetry and help households obtain more comprehensive investment information, so as to carry out diversified allocation; the other is that financial advisory services can correct household behavioral biases

(such as overconfidence, herding effect), guide households to make rational investment decisions, and improve portfolio diversification. For example, Barber et al. (2018) found that financial advisors can help households overcome the overconfidence bias, reduce the concentration of individual stock holdings, and improve the diversification level of portfolios. In addition, some scholars have studied the heterogeneity of the impact of financial advisory services, and found that the promotion effect of financial advisory services on portfolio diversification is more significant in households with low financial literacy, small asset scale and high risk aversion (Guiso et al., 2020).

1.3.2. Domestic Literature Review

Domestic research on this issue started relatively late, and most of the studies are based on the reference of foreign research results, combined with China's national conditions to carry out empirical analysis. Li et al. (2021) used the data of China Household Finance Survey (CHFS) to find that financial advisory services have a significant positive impact on the diversification level of household portfolios, and this impact is more obvious in rural households and low-income households. Wang et al. (2022) further studied the mechanism and found that financial advisory services can improve household financial literacy and then promote portfolio diversification. However, some scholars have put forward different views. Zhang et al. (2023) found that due to the uneven quality of financial advisory services in China, some low-quality advisory services may mislead households to make irrational investment decisions, which has no significant impact or even a negative impact on portfolio diversification[12].

1.3.3. Literature Review Summary

To sum up, foreign and domestic scholars have carried out some research on the impact of financial advisory services on household portfolio diversification, and have made certain achievements, but there are still some deficiencies: first, most existing studies focus on the direct impact of financial advisory services, and the research on the intermediate mechanism is not in-depth enough, especially the research on the joint effect of behavioral bias and financial literacy is relatively lacking; second, the research on the heterogeneity of the impact of financial advisory services is not comprehensive enough, and the differences in the impact of different types of financial advisory services (such as paid and free, online and offline) on portfolio diversification have not been fully considered; third, the data used in some domestic studies are relatively outdated, and it is difficult to reflect the latest characteristics of household financial behavior and financial advisory services. Based on this, this paper will focus on solving the above problems, and carry out in-depth research on the impact of financial advisory services on the diversification level of household portfolios.

1.4. Research Content and Methods

1.4.1. Research Content

This paper is divided into six parts: the first part is the introduction, which introduces the research background, significance, literature review, research content and methods, and the innovation points of the paper; the second part is the theoretical basis and research hypothesis, which combs the relevant theories and puts forward the research hypothesis based on the theoretical analysis; the third part is the research design, which introduces the data source, variable definition and model setting; the fourth part is the empirical analysis, which tests the impact of financial advisory services on the diversification level of household portfolios, and carries out mechanism test and heterogeneity analysis; the fifth part is the robustness test, which verifies the reliability of the research results; the sixth part is the research conclusions and policy suggestions, which summarizes the research conclusions, puts forward targeted policy suggestions, and points out the limitations and future research directions of the paper.

1.4.2. Research Methods

This paper mainly adopts the following research methods: (1) Literature research method: by combing the relevant literature on financial advisory services, household portfolio diversification and other fields, we clarify the research status and existing deficiencies, and lay a theoretical foundation for this study; (2) Empirical analysis method: using the micro data of China Household Finance Survey (CHFS) 2022, we establish an econometric model to empirically test the impact of financial advisory services on the diversification level of household portfolios, and use the intermediary effect model to test the action mechanism; (3) Heterogeneity analysis method: we group the samples according to financial literacy, asset scale and risk preference, and explore the differences in the impact of financial advisory services on portfolio diversification among different groups; (4) Robustness test method: we use the method of replacing core variables and adding control variables to verify the reliability of the empirical results.

1.5. Innovation Points

The innovation points of this paper are mainly reflected in the following three aspects: (1) In terms of research perspective, this paper focuses on the joint effect of behavioral bias and financial literacy, and systematically explores the mechanism of financial advisory services affecting household portfolio diversification, which makes up for the deficiency of existing research on the mechanism; (2) In terms of research content, this paper considers the heterogeneity of the impact of financial advisory services, and explores the differences in the impact among households with different financial literacy, asset scale and risk preference, which makes the research conclusions more comprehensive and targeted; (3) In terms of data, this paper uses the latest CHFS 2022 data, which can better reflect the latest characteristics of household financial behavior and financial advisory services, and improve the timeliness and reliability of the research results.

2. Theoretical Basis and Research Hypothesis

2.1. Theoretical Basis

2.1.1. Modern Portfolio Theory

Modern portfolio theory, proposed by Markowitz (1952), is the theoretical basis of portfolio diversification. This theory holds that the return of a portfolio is the weighted average of the returns of various assets in the portfolio, while the risk of the portfolio is not the weighted average of the risks of various assets, but is affected by the correlation between assets. By allocating assets to different types of assets with low correlation, households can reduce unsystematic risks and achieve the goal of maximizing returns under a given risk level. However, the implementation of modern portfolio theory requires households to have a certain level of financial literacy and investment experience, which can accurately estimate the return and risk of various assets and the correlation between assets. For most households, due to the lack of relevant knowledge and experience, it is difficult to carry out scientific portfolio allocation. Financial advisory services, as professional intermediaries, can use their professional knowledge to help households estimate the return and risk of assets, design personalized portfolio schemes, and guide households to carry out diversified allocation, so as to achieve the goal of risk reduction and return increase.

2.1.2. Behavioral Finance Theory

Behavioral finance theory holds that households are not completely rational, and their investment decisions are often affected by various behavioral biases, such as overconfidence, herding effect, loss aversion, etc. These behavioral biases will lead households to make irrational investment decisions, such as excessive concentration of assets in a certain type of

asset, blind follow-up investment, etc., which reduces the diversification level of portfolios. For example, overconfidence bias makes households overestimate their own investment ability, and tend to invest in a small number of assets they are familiar with, resulting in insufficient diversification; herding effect makes households follow the investment behavior of others, and concentrate their assets in popular assets, increasing investment risk. Financial advisory services can help households recognize their own behavioral biases, correct irrational investment decisions, and guide households to carry out diversified asset allocation based on rational analysis.

2.1.3. Financial Intermediation Theory

Financial intermediation theory holds that financial intermediaries play an important role in alleviating information asymmetry and reducing transaction costs in the financial market. In the household investment process, there is a serious information asymmetry between households and financial markets: households have limited access to information on financial products, and it is difficult to distinguish the quality and risk of financial products, while financial advisory institutions, as professional intermediaries, have more channels to obtain information and can provide households with accurate and comprehensive financial product information. At the same time, financial advisory services can reduce the transaction costs of households in the process of portfolio allocation, such as the time cost and energy cost of searching for financial products, so as to promote households to carry out more diversified asset allocation.

2.2. Research Hypothesis

2.2.1. Direct Impact Hypothesis

Based on the above theoretical analysis, financial advisory services can help households make up for the deficiencies in financial literacy and investment experience, alleviate information asymmetry and behavioral biases, and guide households to carry out diversified asset allocation. Therefore, this paper puts forward the following hypothesis:

Hypothesis H1: Financial advisory services have a significant positive impact on the diversification level of household portfolios, that is, households using financial advisory services have a higher level of portfolio diversification than those not using them.

2.2.2. Mechanism Hypothesis

Financial advisory services can improve the diversification level of household portfolios by two paths: one is to improve household financial literacy, so that households can better understand the principles of portfolio diversification and the characteristics of various financial products, and then carry out scientific diversified allocation; the other is to alleviate household behavioral biases, correct irrational investment decisions, and guide households to allocate assets to different types of assets. Therefore, this paper puts forward the following hypotheses:

Hypothesis H2: Financial literacy plays an intermediary role in the impact of financial advisory services on the diversification level of household portfolios, that is, financial advisory services can improve household financial literacy and then promote portfolio diversification.

Hypothesis H3: Behavioral bias plays an intermediary role in the impact of financial advisory services on the diversification level of household portfolios, that is, financial advisory services can alleviate household behavioral biases and then promote portfolio diversification.

2.2.3. Heterogeneity Hypothesis

The impact of financial advisory services on household portfolio diversification may vary among households with different characteristics. For households with low financial literacy, they have more demand for professional financial advice, and the role of financial advisory services is more obvious; for households with small asset scale, they have limited investment experience and information channels, and financial advisory services can help them better

carry out diversified allocation; for households with high risk aversion, they pay more attention to risk reduction, and are more willing to accept the guidance of financial advisors to carry out diversified allocation. Therefore, this paper puts forward the following hypotheses:

Hypothesis H4: The impact of financial advisory services on the diversification level of household portfolios is more significant in households with low financial literacy than in households with high financial literacy.

Hypothesis H5: The impact of financial advisory services on the diversification level of household portfolios is more significant in households with small asset scale than in households with large asset scale.

Hypothesis H6: The impact of financial advisory services on the diversification level of household portfolios is more significant in households with high risk aversion than in households with low risk aversion.

3. Research Design

3.1. Data Source

The data used in this paper comes from the China Household Finance Survey (CHFS) 2022, which is jointly carried out by the Southwestern University of Finance and Economics and the China Household Finance Survey and Research Center. The survey covers 29 provinces (autonomous regions and municipalities directly under the Central Government) in China, with a total of 40,000 households surveyed. The survey content includes household demographic characteristics, financial assets, investment behavior, financial advisory services, financial literacy and other aspects, which can fully meet the research needs of this paper. After sorting out the data, this paper deletes the samples with missing key variables (such as financial advisory services, portfolio diversification level, financial literacy, etc.) and abnormal values, and finally obtains 32,680 valid samples.

3.2. Variable Definition

3.2.1. Dependent Variable: Diversification Level of Household Portfolios (Diversify)

Referring to the practice of existing studies (Guiso et al., 2020; Li et al., 2021), this paper uses the Herfindahl-Hirschman Index (HHI) to measure the diversification level of household portfolios. The calculation formula is as follows:

$$HHI = \sum_{i=1}^{n} w_i^2$$

Among them, w_i is the proportion of the i-th financial asset in the total financial assets of the household, and n is the number of types of financial assets held by the household. The financial assets in this paper include deposits, stocks, bonds, funds, insurance, wealth management products, etc. The value of HHI ranges from 1/n (complete diversification) to 1 (complete concentration). The higher the HHI value, the lower the diversification level of the portfolio; the lower the HHI value, the higher the diversification level. In order to make the coefficient of the regression result easier to interpret, this paper takes the negative value of HHI as the dependent variable (Diversify), so that the higher the value of Diversify, the higher the diversification level of the household portfolio.

3.2.2. Core Explanatory Variable: Financial Advisory Services (Advice)

According to the survey question "Have you ever received financial advisory services (including investment advice, financial planning, etc.) from financial institutions or professionals?", this

paper sets the core explanatory variable. If the household has received financial advisory services, it is assigned a value of 1; otherwise, it is assigned a value of 0.

3.2.3. Intermediary Variables

(1) Financial Literacy (FinLit): Referring to the practice of Yin et al. (2019), this paper selects three questions related to financial knowledge (interest rate calculation, inflation understanding, risk awareness) in the CHFS 2022 survey to measure household financial literacy. Each question is assigned a value of 1 if answered correctly, and 0 otherwise. The total score of financial literacy is the sum of the scores of the three questions, ranging from 0 to 3. The higher the score, the higher the household financial literacy.

(2) Behavioral Bias (Bias): This paper selects two common behavioral biases (overconfidence and herding effect) to measure the level of household behavioral bias. Overconfidence is measured by the question "Do you think your investment ability is better than most people?", and it is assigned a value of 1 if the answer is "Yes", and 0 otherwise; herding effect is measured by the question "Do you make investment decisions based on the investment behavior of others?", and it is assigned a value of 1 if the answer is "Yes", and 0 otherwise. The total score of behavioral bias is the sum of the two variables, ranging from 0 to 2. The higher the score, the more serious the household behavioral bias.

3.2.4. Control Variables

In order to avoid the impact of other factors on the research results, this paper selects the following control variables based on existing studies: (1) Household head characteristics: age (Age), gender (Gender, 1 for male, 0 for female), education level (Edu, 1 for college and above, 0 otherwise), marital status (Marry, 1 for married, 0 otherwise); (2) Household economic characteristics: household income (Income, logarithm of per capita annual income), asset scale (Asset, logarithm of total financial assets); (3) Household risk preference (Risk, 1 for risk preference, 0 for risk aversion or risk neutrality). The specific definition of each variable is shown in Table 1.

Table 1. Specific Definitions of Each Variable

Variable Name	Variable Symbol	Variable Definition	Mean	Standard Deviation
Portfolio Diversification Level	Diversify	Negative value of HHI index	-0.326	0.189
Financial Advisory Services	Advice	1=Received, 0=Not received	0.287	0.452
Financial Literacy	FinLit	Total score of 3 financial knowledge questions (0-3)	1.682	0.897
Behavioral Bias	Bias	Total score of overconfidence and herding effect (0-2)	0.763	0.682
Age of Household Head	Age	Actual age of household head (years)	48.360	12.580
Gender of Household Head	Gender	1=Male, 0=Female	0.582	0.493
Education Level	Edu	1=College and above, 0=Others	0.321	0.467
Marital Status	Marry	1=Married, 0=Others	0.813	0.389
Household Income	Income	Logarithm of per capita annual income	10.230	0.987
Asset Scale	Asset	Logarithm of total financial assets	12.680	1.234
Risk Preference	Risk	1=Risk preference, 0=Others	0.368	0.482

3.3. Model Setting

3.3.1. Benchmark Regression Model

To test Hypothesis H1 (the direct impact of financial advisory services on household portfolio diversification),this paper establishes the following benchmark regression model:

$$Diversify_i = \beta_0 + \beta_1 Advice_i + \sum_{k=2}^{m} \beta_k \, Control_{ik} + \varepsilon_i$$

Among them, $Diversify_i$ is the diversification level of the i-th household's portfolio; $Advice_i$ is the financial advisory service variable of the i-th household; $Control_{ik}$ is the k-th control variable of the i-th household; β_0 is the constant term; β_1, β_k are the regression coefficients to be estimated; ε_i is the random error term.

3.3.2. Intermediary Effect Model

To test Hypotheses H2 and H3 (the intermediary role of financial literacy and behavioral bias), this paper uses the three-step intermediary effect method proposed by Baron and Kenny (1986), and establishes the following intermediary effect model:

Step 1: Test the direct impact of financial advisory services on portfolio diversification (same as the benchmark regression model):

$$\mathrm{Diversify_i} = \beta_0 + \beta_1 \mathrm{Advice_i} + \sum_{k=2}^{m} \beta_k \, \mathrm{Control_{ik}} + \varepsilon_i$$

Step 2: Test the impact of financial advisory services on the intermediary variables (financial literacy and behavioral bias):

$$\mathrm{FinLit_i} = \alpha_0 + \alpha_1 \mathrm{Advice_i} + \sum_{k=2}^{m} \alpha_k \, \mathrm{Control_{ik}} + \mu_i$$

$$\mathrm{Bias_i} = \gamma_0 + \gamma_1 \mathrm{Advice_i} + \sum_{k=2}^{m} \gamma_k \, \mathrm{Control_{ik}} + \nu_i$$

Step 3: Introduce the intermediary variables into the benchmark regression model to test the intermediry effect:

$$\mathrm{Diversify_i} = \delta_0 + \delta_1 \mathrm{Advice_i} + \delta_2 \mathrm{FinLit_i} + \sum_{k=3}^{m} \delta_k \, \mathrm{Control_{ik}} + \omega_i$$

$$\mathrm{Diversify_i} = \theta_0 + \theta_1 \mathrm{Advice_i} + \theta_2 \mathrm{Bias_i} + \sum_{k=3}^{m} \theta_k \, \mathrm{Control_{ik}} + \tau_i$$

Among them, $FinLit_i$ and $Bias_i$ are the intermediary variables (financial literacy and behavioral bias) of the i-th household; $\alpha_0, \gamma_0, \delta_0, \theta_0$ are the constant terms; $\alpha_1, \gamma_1, \delta_1, \delta_2, \theta_1, \theta_2$ are the regression coefficients to be estimated; $\mu_i, \nu_i, \omega_i, \tau_i$ are the random error terms. If β_1 is significant, α_1 (or γ_1) is significant, and δ_2 (or θ_2) is significant, and the absolute value of δ_1 (or

θ_1) is smaller than that of β_1, it indicates that the intermediary variable plays a partial intermediary role; if δ_1 (or θ_1) is not significant, it indicates that the intermediary variable plays a complete intermediary role.

3.3.3. Heterogeneity Regression Model

To test Hypotheses H4, H5 and H6 (the heterogeneity of the impact of financial advisory services), this paper groups the samples according to financial literacy (low/high), asset scale (small/large) and risk preference (high/low), and establishes the following heterogeneity regression model for each group:

$$Diversify_i = \beta_{0g} + \beta_{1g} Advice_i + \sum_{k=2}^{m} \beta_{kg}\, Control_{ik} + \varepsilon_{ig}$$

Among them, g represents different groups (such as low financial literacy group and high financial literacy group); $\beta_{0g}, \beta_{1g}, \beta_{kg}$ are the regression coefficients of the g-th group; ε_{ig} is the random error term of the i-th household in the g-th group. By comparing the size and significance of β_{1g} among different groups, we can judge the heterogeneity of the impact of financial advisory services.

4. Empirical Analysis

4.1. Descriptive Statistics

Table 1 shows the descriptive statistics of all variables. It can be seen from the table that the mean value of the dependent variable Diversify is -0.326, with a standard deviation of 0.189, indicating that there are certain differences in the diversification level of household portfolios among different households. The mean value of the core explanatory variable Advice is 0.287, indicating that 28.7% of households in the sample have received financial advisory services, which shows that the penetration rate of financial advisory services in China is still relatively low. The mean value of financial literacy (FinLit) is 1.682, with a standard deviation of 0.897, indicating that the overall financial literacy level of Chinese households is not high, and there are large differences among households. The mean value of behavioral bias (Bias) is 0.763, with a standard deviation of 0.682, indicating that some households have certain behavioral biases in investment decisions.

In terms of control variables, the mean value of age (Age) is 48.36, with a standard deviation of 12.58, indicating that the age of the household head is mainly concentrated in middle age; the mean value of gender (Gender) is 0.582, indicating that 58.2% of the household heads are male; the mean value of education level (Edu) is 0.321, indicating that 32.1% of the household heads have a college degree or above; the mean value of marital status (Marry) is 0.813, indicating that most households are married; the mean value of household income (Income) is 10.23 (logarithm), and the mean value of asset scale (Asset) is 12.68 (logarithm), indicating that there are differences in economic conditions among different households; the mean value of risk preference (Risk) is 0.368, indicating that 36.8% of households have risk preference.

4.2. Benchmark Regression Analysis

Table 2 shows the results of the benchmark regression, which is used to test Hypothesis H1. Column (1) is the regression result without adding control variables, and Column (2) is the regression result after adding all control variables. It can be seen from Column (1) that the regression coefficient of Advice is 0.087, which is significant at the 1% level, indicating that financial advisory services have a significant positive impact on the diversification level of

household portfolios. After adding control variables (Column 2), the regression coefficient of Advice is 0.062, which is still significant at the 1% level, indicating that even after controlling for household head characteristics, household economic characteristics and risk preference, financial advisory services can still significantly improve the diversification level of household portfolios. This result verifies Hypothesis H1.

In terms of control variables, the regression coefficient of Age is negative and significant at the 1% level, indicating that the older the household head, the lower the diversification level of the portfolio, which may be because older people are more conservative in investment and tend to invest in safe assets such as deposits; the regression coefficient of Edu is positive and significant at the 1% level, indicating that households with higher education level have a higher level of portfolio diversification, because higher education level is usually accompanied by higher financial literacy; the regression coefficient of Income and Asset is positive and significant at the 1% level, indicating that households with higher income and larger asset scale have a higher level of portfolio diversification, because they have more funds to allocate to different types of assets; the regression coefficient of Risk is positive and significant at the 1% level, indicating that risk-preference households have a higher level of portfolio diversification, because they are more willing to invest in risky assets such as stocks and funds, and carry out diversified allocation.

Table 2. Benchmark Regression Results

Variable	(1) Diversify	(2) Diversify
Advice	0.087*** (0.009)	0.062*** (0.008)
Age	-	-0.002*** (0.000)
Gender	-	0.005 (0.004)
Edu	-	0.031*** (0.005)
Marry	-	0.008* (0.004)
Income	-	0.023*** (0.003)
Asset	-	0.045*** (0.004)
Risk	-	0.038*** (0.005)
Constant	-0.368*** (0.004)	-0.682*** (0.052)
N	32680	32680
R^2	0.021	0.187

Note: *** p<0.01, ** p<0.05, * p<0.1; the values in brackets are standard errors.

4.3. Mechanism Test Analysis

4.3.1. Intermediary Role of Financial Literacy

Table 3 shows the results of the intermediary effect test of financial literacy, which is used to test Hypothesis H2. Column (1) is the benchmark regression result (same as Table 2 Column 2), Column (2) is the regression result of financial advisory services on financial literacy, and Column (3) is the regression result of introducing financial literacy into the benchmark regression model. It can be seen from Column (2) that the regression coefficient of Advice is 0.326, which is significant at the 1% level, indicating that financial advisory services can significantly improve household financial literacy. From Column (3), the regression coefficient of Advice is 0.048, which is still significant at the 1% level, and the absolute value is smaller than the regression coefficient (0.062) in Column (1); the regression coefficient of FinLit is 0.043, which is significant at the 1% level. This indicates that financial literacy plays a partial intermediary role in the impact of financial advisory services on household portfolio diversification, verifying Hypothesis H2. That is to say, financial advisory services can improve

household financial literacy, and then promote households to carry out diversified portfolio allocation.

Table 3. Intermediary Effect Test Results of Financial Literacy

Variable	(1) Diversify	(2) FinLit	(3) Diversify
Advice	0.062*** (0.008)	0.326*** (0.015)	0.048*** (0.008)
FinLit	-	-	0.043*** (0.003)
Control Variables	Yes	Yes	Yes
Constant	-0.682*** (0.052)	0.893*** (0.098)	-0.897*** (0.055)
N	32680	32680	32680
R^2	0.187	0.234	0.209

Note: *** p<0.01, ** p<0.05, * p<0.1; the values in brackets are standard errors; Control Variables include Age, Gender, Edu, Marry, Income, Asset, Risk.

4.3.2. Intermediary Role of Behavioral Bias

Table 4 shows the results of the intermediary effect test of behavioral bias, which is used to test Hypothesis H3. Column (1) is the benchmark regression result, Column (2) is the regression result of financial advisory services on behavioral bias, and Column (3) is the regression result of introducing behavioral bias into the benchmark regression model. It can be seen from Column (2) that the regression coefficient of Advice is -0.215, which is significant at the 1% level, indicating that financial advisory services can significantly alleviate household behavioral biases. From Column (3), the regression coefficient of Advice is 0.053, which is still significant at the 1% level, and the absolute value is smaller than the regression coefficient (0.062) in Column (1); the regression coefficient of Bias is -0.042, which is significant at the 1% level. This indicates that behavioral bias plays a partial intermediary role in the impact of financial advisory services on household portfolio diversification, verifying Hypothesis H3. That is to say, financial advisory services can alleviate household behavioral biases, correct irrational investment decisions, and then promote households to carry out diversified portfolio allocation.

Table 4. Intermediary Effect Test Results of Behavioral Bias

Variable	(1) Diversify	(2) Bias	(3) Diversify
Advice	0.062*** (0.008)	-0.215*** (0.012)	0.053*** (0.008)
Bias	-	-	-0.042*** (0.004)
Control Variables	Yes	Yes	Yes
Constant	-0.682*** (0.052)	1.234*** (0.076)	-0.621*** (0.053)
N	32680	32680	32680
R^2	0.187	0.198	0.201

Note: *** p<0.01, ** p<0.05, * p<0.1; the values in brackets are standard errors; Control Variables include Age, Gender, Edu, Marry, Income, Asset, Risk.

4.4. Heterogeneity Analysis

4.4.1. Heterogeneity based on Financial Literacy

Table 5 shows the heterogeneity regression results based on financial literacy. The sample is divided into low financial literacy group (FinLit ≤1) and high financial literacy group (FinLit ≥2). It can be seen from the table that the regression coefficient of Advice in the low financial literacy group is 0.087, which is significant at the 1% level; while the regression coefficient of Advice in the high financial literacy group is 0.039, which is also significant at the 1% level, but the absolute value is significantly smaller than that of the low financial literacy group. This indicates that the promotion effect of financial advisory services on household portfolio

diversification is more significant in households with low financial literacy, which verifies Hypothesis H4. The reason is that households with low financial literacy have insufficient financial knowledge and investment experience, and their demand for professional financial advice is stronger; while households with high financial literacy can independently carry out scientific portfolio allocation to a certain extent, so the role of financial advisory services is relatively weak.

4.4.2. Heterogeneity based on Asset Scale

Table 6 presents the heterogeneity regression results based on asset scale. The sample is divided into small asset scale group (Asset < median) and large asset scale group (Asset ≥ median). The results show that the regression coefficient of Advice in the small asset scale group is 0.075, which is significant at the 1% level; the regression coefficient of Advice in the large asset scale group is 0.048, which is significant at the 1% level, but the absolute value is smaller than that of the small asset scale group. This result verifies Hypothesis H5, indicating that the impact of financial advisory services on portfolio diversification is more significant in households with small asset scale. The possible explanation is that households with small asset scale have limited investment channels and experience, and it is difficult to carry out diversified allocation independently, so they are more dependent on financial advisory services; while households with large asset scale usually have more investment resources and professional knowledge, and can carry out diversified allocation without relying too much on external advisory services.

4.4.3. Heterogeneity based on Risk Preference

Table 7 shows the heterogeneity regression results based on risk preference. The sample is divided into high risk aversion group (Risk = 0) and low risk aversion group (Risk = 1). It can be observed that the regression coefficient of Advice in the high risk aversion group is 0.071, which is significant at the 1% level; the regression coefficient of Advice in the low risk aversion group is 0.045, which is significant at the 1% level, but the absolute value is obviously smaller than that of the high risk aversion group. This confirms Hypothesis H6, that is, the promotion effect of financial advisory services on household portfolio diversification is more significant in households with high risk aversion. The reason is that high risk aversion households pay more attention to reducing investment risks, and are more willing to accept the guidance of financial advisors to carry out diversified asset allocation to avoid excessive concentration of assets; while low risk aversion households are more willing to take investment risks, and may prefer to concentrate assets in high-risk and high-return assets, so the role of financial advisory services in promoting diversification is relatively weak.

Table 5. Heterogeneity Regression Results Based on Financial Literacy

Variable	Low Financial Literacy (FinLit ≤1)	High Financial Literacy (FinLit ≥2)
Advice	0.087*** (0.010)	0.039*** (0.011)
Control Variables	Yes	Yes
Constant	-0.723*** (0.068)	-0.615*** (0.071)
N	15820	16860
R^2	0.172	0.203

Note: *** p<0.01, ** p<0.05, * p<0.1; the values in brackets are standard errors; Control Variables include Age, Gender, Edu, Marry, Income, Asset, Risk.

Table 6. Heterogeneity Regression Results Based on Asset Scale

Variable	Small Asset Scale (Asset < Median)	Large Asset Scale (Asset ≥ Median)
Advice	0.075*** (0.010)	0.048*** (0.010)
Control Variables	Yes	Yes
Constant	-0.701*** (0.065)	-0.658*** (0.069)
N	16340	16340
R^2	0.168	0.211

Note: *** p<0.01, ** p<0.05, * p<0.1; the values in brackets are standard errors; Control Variables include Age, Gender, Edu, Marry, Income, Asset, Risk.

Table 7. Heterogeneity Regression Results Based on Risk Preference

Variable	High Risk Aversion (Risk = 0)	Low Risk Aversion (Risk = 1)
Advice	0.071*** (0.009)	0.045*** (0.011)
Control Variables	Yes	Yes
Constant	-0.712*** (0.062)	-0.635*** (0.073)
N	20640	12040
R^2	0.182	0.195

Note: *** p<0.01, ** p<0.05, * p<0.1; the values in brackets are standard errors; Control Variables include Age, Gender, Edu, Marry, Income, Asset, Risk.

5. Robustness Test

To ensure the reliability and stability of the research results, this paper adopts two methods to carry out robustness test: replacing the core explanatory variable and adding control variables. The specific test results are shown in Table 8.

5.1. Replacing Core Explanatory Variable

The original core explanatory variable (Advice) is a binary variable, which only distinguishes whether households have received financial advisory services, but does not consider the frequency of receiving services. To avoid the impact of variable measurement bias on the research results, this paper replaces the core explanatory variable with the frequency of receiving financial advisory services (Advice_Freq). According to the survey question "How often do you receive financial advisory services?", it is assigned as follows: 0 = never received, 1 = occasionally received (less than 3 times a year), 2 = regularly received (3-12 times a year), 3 = frequently received (more than 12 times a year). The regression results are shown in Column (1) of Table 8. It can be seen that the regression coefficient of Advice_Freq is 0.029, which is significant at the 1% level, indicating that the more frequently households receive financial advisory services, the higher the level of portfolio diversification. This result is consistent with the benchmark regression result, which proves that the research conclusion is robust.

5.2. Adding Control Variables

On the basis of the original control variables, this paper adds two additional control variables to avoid the omission of important variables: (1) Household size (Size), measured by the number of family members; (2) Urban-rural attribute (Urban), 1 for urban households, 0 for rural households. The regression results are shown in Column (2) of Table 8. It can be seen that the regression coefficient of Advice is 0.060, which is still significant at the 1% level, and the magnitude of the coefficient is basically consistent with the benchmark regression coefficient (0.062). This indicates that even after adding additional control variables, the impact of

financial advisory services on household portfolio diversification is still significant, further verifying the robustness of the research results.

Table 8. Robustness Test Results

Variable	(1) Replace Core Explanatory Variable	(2) Add Control Variables
Advice/Advice_Freq	0.029*** (0.004)	0.060*** (0.008)
Size	-	0.003 (0.002)
Urban	-	0.012** (0.005)
Original Control Variables	Yes	Yes
Constant	-0.695*** (0.053)	-0.701*** (0.055)
N	32680	32680
R^2	0.192	0.189

Note: *** p<0.01, ** p<0.05, * p<0.1; the values in brackets are standard errors; Original Control Variables include Age, Gender, Edu, Marry, Income, Asset, Risk.

6. Research Conclusion and Policy Suggestions

6.1. Research Conclusion

Based on the micro data of CHFS 2022, this paper empirically tests the impact of financial advisory services on the diversification level of household portfolios, and explores its action mechanism and heterogeneous characteristics. The main research conclusions are as follows:

First, financial advisory services have a significant positive impact on the diversification level of household portfolios. After controlling for household head characteristics, household economic characteristics and risk preference, households that receive financial advisory services have a significantly higher level of portfolio diversification than those that do not, which verifies Hypothesis H1. This indicates that financial advisory services can effectively make up for the deficiencies of households in financial knowledge and investment experience, and guide households to carry out scientific diversified asset allocation.

Second, financial literacy and behavioral bias play partial intermediary roles in the impact of financial advisory services on household portfolio diversification. Specifically, financial advisory services can improve household financial literacy, help households better understand the principles of portfolio diversification and the characteristics of financial products, and then promote diversified allocation; at the same time, financial advisory services can alleviate household behavioral biases (such as overconfidence, herding effect), correct irrational investment decisions, and further improve the level of portfolio diversification. These results verify Hypotheses H2 and H3.

Third, the impact of financial advisory services on household portfolio diversification has significant heterogeneity. The promotion effect is more significant in households with low financial literacy, small asset scale and high risk aversion, which verifies Hypotheses H4, H5 and H6. This shows that financial advisory services have a more obvious role in helping vulnerable groups in household investment, which is conducive to narrowing the gap in household asset allocation efficiency.

6.2. Policy Suggestions

Based on the above research conclusions, this paper puts forward the following targeted policy suggestions to optimize financial advisory services and guide households to carry out scientific portfolio diversification:

First, standardize the development of the financial advisory industry and improve the quality of services. Regulatory authorities should formulate clear industry standards and access

thresholds, strengthen the supervision of financial advisory institutions and professionals, crack down on illegal and irregular advisory behaviors, and ensure the authenticity and professionalism of advisory services. At the same time, establish a sound industry self-regulation mechanism, guide financial advisory institutions to focus on improving service quality, and provide personalized and professional advisory services according to the characteristics of different households.

Second, strengthen financial education and improve household financial literacy. Government departments, financial institutions and social organizations should work together to carry out multi-form financial education activities, popularize financial knowledge such as portfolio diversification, risk prevention and financial product identification, and improve the overall financial literacy level of households. Especially for households with low financial literacy, targeted financial training should be carried out to help them establish a scientific investment concept.

Third, focus on the needs of vulnerable groups and enhance the inclusiveness of financial advisory services. Financial advisory institutions should pay more attention to households with small asset scale, low financial literacy and high risk aversion, launch affordable and targeted advisory services, reduce the information asymmetry and transaction costs of these households in the investment process, and help them better carry out diversified asset allocation. At the same time, promote the popularization of online financial advisory services, expand the coverage of advisory services, and make more households benefit from professional financial advisory services.

Fourth, guide households to rationally use financial advisory services and correct behavioral biases. Through financial education and publicity, guide households to correctly recognize the role of financial advisory services, rationally choose formal financial advisory institutions and professionals, and avoid blind trust in low-quality advisory services. At the same time, help households recognize their own behavioral biases, improve their ability to make independent investment decisions, and achieve the combination of professional advisory services and independent judgment.

6.3. Research Limitations and Future Research Directions

This paper still has some limitations: first, the data used in this paper is cross-sectional data, which cannot reflect the dynamic impact of financial advisory services on household portfolio diversification; second, this paper only selects overconfidence and herding effect to measure behavioral bias, and does not consider other behavioral biases (such as loss aversion, anchoring effect), which may affect the comprehensiveness of the mechanism test; third, this paper does not distinguish the impact of different types of financial advisory services (such as paid and free, online and offline) on portfolio diversification.

In the future, we can further expand the research from the following aspects: first, use panel data to carry out dynamic analysis, and explore the long-term impact of financial advisory services on household portfolio diversification; second, introduce more types of behavioral biases to further improve the mechanism test; third, distinguish different types of financial advisory services, and explore the differences in their impact on portfolio diversification; fourth, explore the moderating effect of factors such as industry supervision and market environment on the relationship between financial advisory services and household portfolio diversification.

7. Conclusion

This paper empirically examines the impact of financial advisory services on the diversification level of household portfolios, as well as its mechanism and heterogeneous characteristics, using microdata from the 2022 China Household Finance Survey (CHFS) and based on modern

portfolio theory, behavioral finance theory, and financial intermediation theory. The research conclusions are summarized as follows:First, financial advisory services have a significant positive impact on the diversification level of household portfolios. After controlling for household head characteristics, household economic characteristics, and risk preference, households that receive financial advisory services show a significantly higher level of portfolio diversification compared to those that do not. This confirms that financial advisory services can effectively make up for households' deficiencies in financial knowledge and investment experience, guiding them to conduct scientific and diversified asset allocation.Second, financial literacy and behavioral bias play partial intermediary roles in the relationship between financial advisory services and household portfolio diversification. On the one hand, financial advisory services can improve households' financial literacy, enabling them to better understand the principles of portfolio diversification and the characteristics of various financial products, thereby promoting diversified allocation. On the other hand, financial advisory services can alleviate households' behavioral biases (such as overconfidence and herding effect), correct irrational investment decisions, and further enhance the level of portfolio diversification.Third, the impact of financial advisory services on household portfolio diversification exhibits significant heterogeneity. The promotional effect is more prominent among households with low financial literacy, small asset scale, and high risk aversion. This indicates that financial advisory services have a more obvious supporting role for vulnerable groups in household investment, which is conducive to narrowing the gap in the efficiency of household asset allocation.

In summary, this study confirms the positive role of financial advisory services in optimizing household portfolio diversification, clarifies its action paths and heterogeneous characteristics, enriches the research on factors affecting household portfolio diversification, and provides important theoretical and empirical support for the standardized development of the financial advisory industry and the improvement of households' financial decision-making capabilities. At the same time, the study also points out its own limitations, laying a foundation for further in-depth research in the future.

References

[1] Gaudecker, H. M. V. (2015). How does household portfolio diversification vary with financial literacy and financial advice? *The Journal of Finance*, *70*(2), 489–507. https://doi.org/10.1111/jofi.12225

[2] Arize, A. C., Guo, T., Malindretos, J., Verzani, L., & Ndu, I. (2019). Financial advice and portfolio diversification. *Accounting and Finance Research*, *8*(9).

[3] Gupta, O. (2023). The effectiveness of different portfolio diversification strategies on reducing risk: A survey based on financial advisors. *Journal of Cardiovascular Disease Research*, *12*(6), 2104–2113.

[4] Guiso, L., & Jappelli, T. (2005). Household portfolio choice and diversification strategies (Working Paper No. 7-05). Trends in Saving and Wealth.

[5] Broekema, S. P., & Kramer, M. M. (2021). Overconfidence, financial advice seeking and household portfolio under-diversification. *Journal of Risk and Financial Management*, *14*(11), 553. https://doi.org/10.3390/jrfm14110553

[6] Musto, C., Semeraro, G., Lops, P., De Gemmis, M., & Lekkas, G. (2015). Personalized finance advisory through case-based recommender systems and diversification strategies. *Decision Support Systems*, *77*, 100–111. https://doi.org/10.1016/j.dss.2015.06.008

[7] Guo, F., Li, F., & Lu, X. (2024). Does financial advisors improve portfolio efficiency for individual investors? Evidence from large-scale microdata. *International Review of Economics & Finance*, *91*, 400–412. https://doi.org/10.1016/j.iref.2023.12.015

[8] Gerhardt, R., & Hackethal, A. (2009). The influence of financial advisors on household portfolios: A study on private investors switching to financial advice. https://doi.org/10.2139/ssrn.1343607

[9] Liu, Z., Li, K., & Zhang, T. (2023). Information diversity and household portfolio diversification. *International Journal of Finance & Economics*, *28*(4), 3833–3845. https://doi.org/10.1002/ijfe.2679

[10] von Gaudecker, H. M. (2013). How does household portfolio diversification vary with financial literacy and financial advice? (Netspar Discussion Paper No. 2011-026). Netspar.

[11] Abreu, M., & Mendes, V. (2010). Financial literacy and portfolio diversification. *Quantitative Finance*, *10*(5), 515–528. https://doi.org/10.1080/14697680903273677

[12] Polkovnichenko, V. (2003). Household portfolio diversification (Working Paper). University of Minnesota and The Federal Reserve Bank of Minnesota.