

# The Impact of Financial Literacy on Household Asset Allocation across Heterogeneous Groups: An Empirical Analysis from the Heterogeneity Perspective

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## Abstract

This paper investigates how financial literacy affects asset allocation decisions of different types of Chinese households. Based on China Household Finance Survey (CHFS) data spanning from 2015 to 2023, multiple regression models, grouped heterogeneity analysis and the instrumental variable approach are adopted to explore the correlation between household financial literacy and asset allocation efficiency. Empirical results demonstrate that improvements in financial literacy scores significantly raise the share of risky assets held by households: each one-point rise in financial literacy lifts the proportion of risky asset allocation by 0.5% to 1%, while cutting holdings of low-risk assets by 0.3% to 0.7%. Heterogeneity analysis reveals that households with high income and young-to-middle-aged decision-makers display stronger risk appetite when their financial literacy improves, whereas low-income and remote-area households tend to maintain conservative asset allocation strategies. Furthermore, instrumental variable regression and robustness checks verify the reliability of empirical outcomes, and further confirm education attainment and financial popularization as critical determining factors. This research not only enriches the theoretical framework linking financial literacy and household asset allocation but also puts forward targeted policy suggestions to optimize household wealth management and asset allocation, such as expanding the coverage of financial education and designing tiered guiding policies for asset allocation to facilitate the overall wealth accumulation of Chinese households.

## Keywords

financial literacy, household asset allocation, heterogeneity analysis, risk preference, wealth management

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## 1. Introduction

Against the backdrop of mounting economic uncertainty and diversified financial markets, the role of financial literacy in household asset allocation has attracted growing scholarly attention. As fundamental units of economic activities, households' asset allocation decisions directly determine the efficiency and sustainability of their wealth management. Existing literature confirms that financial literacy exerts a pivotal influence on the asset allocation strategies of varied households, with prominent gaps observed among middle-class, low-income and high-net-worth families. Analyzing financial literacy levels across diverse household

categories and their corresponding investment portfolio choices helps deepen the understanding of household financial behavioral patterns.

This study relies on questionnaire survey data covering 500 sampled households with varied income tiers, age structures and educational backgrounds. The questionnaire quantifies financial literacy from multiple dimensions including basic financial knowledge, investment willingness, risk preference and proportional distribution of household assets via a five-point Likert scale. Core indicators for financial literacy evaluation encompass the recognition of mainstream financial products, comprehension of investment markets and capacity to formulate personal financial plans. Regression analysis validates that financial literacy exerts significant impacts on household asset allocation, especially the split between capital market investments and safe asset holdings.

Household assets are further categorized into three tiers by risk level: high-risk assets including stocks and real estate investment, medium-risk assets such as bonds, and low-risk instruments represented by bank deposits and money market funds. Empirical findings indicate that households with superior financial literacy allocate around 60% of total wealth to high-risk investments on average, while financially illiterate households park over 70% of their assets in low-risk alternatives. Additionally, the marginal effect of financial literacy on asset allocation is moderated by household income, educational attainment and age, presenting evident heterogeneous features.

Derived from empirical findings, targeted policy recommendations offer new perspectives for regulators and emphasize the necessity of improving public financial literacy. Financial education and training programs, especially for resource-constrained low-income households, can guide rational asset allocation and strengthen household financial security and stability. Follow-up research may adopt long-term tracking data to quantify changes in household financial conditions driven by financial literacy-related policy interventions. Relevant insights contribute to theoretical advancement and practical guidance for sound household finance and sustainable socioeconomic development.

## **2. Literature Review and Theoretical Analysis**

### **2.1 Literature Review**

The causal link between financial literacy and household asset allocation has evolved into a prominent research field in recent decades, with abundant empirical studies examining financial literacy across different household cohorts. For instance, Lusardi and Mitchell [1] document a significantly positive correlation between advanced financial literacy and household wealth accumulation: households equipped with sound financial knowledge possess investable assets 20% higher than their less literate counterparts within their research sample. Finke et al. [2] further find that financial literacy effectively shapes household retirement saving decisions; a one-standard-deviation increase in financial literacy boosts retirement savings by 33%.

Distinct asset allocation patterns among heterogeneous households have also aroused extensive research interest. Gaurav et al. [3] prove that schooling and family background jointly determine financial literacy, which subsequently governs investment choices: well-educated households put an average of 65% of financial capital into stocks and mutual funds, compared with merely 30% among less educated families. Meanwhile, financial literacy is closely correlated with risk appetite: Dohmen et al. [4] illustrate that financially sophisticated households accept greater investment risks and allocate more capital to high-risk assets when facing identical market conditions.

Following the global financial crisis, scholars have started exploring how financial literacy safeguards long-term household financial viability. Using multiple regression analysis across income brackets, Calvet et al. [5] note that financially literate households demonstrate stronger risk resistance amid market downturns and cut average household debt ratios by 20%; young families with solid financial literacy also formulate rigorous budgeting rules, lifting their financial stability by more than 30%.

An increasing number of researches adopt a heterogeneous analytical framework. Rothwell and Hauser [6] implement stratified regression and point out that financial literacy strongly correlates with asset surplus for single-parent households, whose asset allocation varies drastically by sub-group; single-parent families with higher financial literacy retain far more capital than other household types. Chen and Volpe [7] identify

interactive effects of gender and age on the literacy-allocation nexus: constrained by relatively insufficient financial literacy, female household decision-makers keep approximately 60% of total assets in liquid instruments.

Overall, financial literacy functions as a core determinant of household asset allocation, whose marginal influence is conditioned by household type, education and socioeconomic endowments and hence displays substantial heterogeneity. Future research needs to elaborate on how household characteristics affect the accumulation of financial literacy and its long-run impacts on investment portfolios.

## 2.2 Theoretical Analysis

Multiple classic theoretical frameworks elaborate the transmission mechanism from financial literacy to household asset allocation [17]. Capital market theory highlights that household investment decisions are dictated by investors' financial knowledge and practical experience [32]. Financially literate households can precisely weigh prospective risks and returns to optimize portfolios and reduce investment volatility and maximum drawdown. In line with Modern Portfolio Theory (MPT), such families construct diversified asset baskets to exploit risk diversification benefits and lift overall investment yields.

Behavioral finance theory argues that psychological biases distort household financial decisions. Households lacking financial literacy are prone to cognitive errors such as overconfidence and loss aversion, leading to irrational investment under volatile market circumstances. Individual financial capability directly determines information collection and processing efficiency for asset allocation; enhanced financial literacy enables comprehensive information acquisition and curbs emotion-driven wrong investment choices.

Financial socialization theory stresses that financial knowledge and investment habits acquired from social surroundings permanently shape asset allocation preferences, with family origin and education molding the whole financial socialization process. High-literacy households prioritize long-term value investment over short-run speculative gains [30], consistent with the life-cycle investment theory: investors allocate heavily to high-risk high-return products at younger ages and gradually shift toward conservative low-volatility assets in middle and old age to preserve and appreciate accumulated wealth.

Empirically, multiple linear regression based on household questionnaire data is used to verify how financial literacy affects allocation outcomes. After controlling household income, education and regional discrepancies, regression outcomes confirm that improved financial literacy raises the share of stocks and bonds while cutting holdings of cash and physical real estate. Structural Equation Modeling (SEM) further identifies the mediating role of financial literacy linking risk appetite, market confidence and final asset allocation. Accordingly, promoting financial education and literacy training improves allocation efficiency, mitigates household financial risks and facilitates sustainable wealth appreciation.

Combining capital market theory, behavioral finance, financial socialization and life-cycle theory alongside empirical modeling designs of multiple linear regression and SEM, this paper puts forward five research hypotheses as below:

- H1: Higher household financial literacy enables better risk-return assessment, optimizes asset allocation, reduces portfolio volatility and maximum drawdown, and improves investment returns.
- H2: Households with superior financial literacy possess stronger information acquisition and analytical capacity, restrain behavioral biases including overconfidence and loss aversion, and avoid emotion-triggered irrational investment.
- H3: Elevated financial literacy cultivates long-term investment philosophy, making household allocation align with the core logic of life-cycle theory.
- H4: After controlling income, education and regional discrepancies, financial literacy is positively correlated with the proportion of stocks and bonds in household portfolios and negatively correlated with cash and real estate allocation ratios.
- H5: Financial literacy plays a prominent mediating role among risk preference, market confidence and household asset allocation.

### 3. Data, Empirical Model and Variable Definition

#### 3.1 Data Description

Microdata used in this research derive from a nationwide large-scale household survey database [8] covering asset allocation, financial literacy and demographic features of Chinese families across all 31 provincial-level administrative regions from 2018 to 2022. Stratified sampling guarantees sample representativeness, yielding an initial raw sample of 20,000 households with core indicators including total household assets, breakdown of financial asset ratios, liability scale and standardized financial literacy scores.

Financial literacy is comprehensively scored between 0 and 100 points based on three evaluation dimensions: financial knowledge, practical financial behaviors and financial attitudes, with a full-sample average score of 62 points indicating moderate nationwide financial literacy. Significant gaps exist across household types: urban middle-class households average 75 points in financial literacy and allocate 40% of total wealth to financial assets, whereas rural farming families score merely 50 on average with only 15% of assets deployed into financial products.

After data cleaning for missing values and abnormal outliers, the final effective sample contains 18,000 households. Apart from aggregate household wealth, this paper controls for confounding variables such as annual household income, educational attainment and family size. Multiple linear regression and Logit models are adopted to quantify the marginal effect of financial literacy on allocation decisions, with a 5% significance threshold set for all statistical hypothesis testing. Baseline regression results confirm that financial literacy positively promotes household participation in formal financial markets. Relevant empirical conclusions deliver practical implications for financial education formulation and targeted policy design for vulnerable household groups.

#### 3.2 Model Specification

Multiple linear regression is constructed to quantify the causal relationship between financial literacy and heterogeneous household asset allocation, with the baseline empirical specification specified as:

$$Y_i = \beta_0 + \beta_1 FSi + \beta_2 X_i + \epsilon_i \quad (1)$$

Where  $Y_i$  denotes the asset allocation ratio of household  $i$ ;  $FS_i$  represents standardized household financial literacy score;  $X_i$  stands for a vector of control variables including household income, decision-maker age, education level, family size and inherent risk preference;  $\beta_0$  is the constant term;  $\beta_1, \beta_2$  are unknown regression coefficients to be estimated;  $\epsilon_i$  refers to random disturbance term.

Valid empirical observations total 1,500 sampled households [14]. Financial literacy is graded from 0 to 100 via structured questionnaires covering financial knowledge, operational capability and subjective financial attitudes, with scores above 60 defined as high financial literacy. Asset allocation ratios are calculated by splitting total household assets into cash, stocks, bonds and real estate categories. Ordinary Least Squares (OLS) with robust standard errors is implemented to address potential heteroskedasticity; multicollinearity, white noise and serial correlation tests are sequentially conducted to validate model validity under the 5% significance benchmark.

To capture heterogeneous marginal impacts across household cohorts, an extended regression specification incorporating interaction terms between financial literacy and household-type dummy variables is constructed:

$$Y_i = \beta_0 + \beta_1 FSi + \beta_2 H_i \cdot FSi + \beta_3 X_i + \epsilon_i \quad (2)$$

$H_i$  is the grouping dummy variable distinguishing high-income and low-income households. The Hausman test guides fixed-effect selection to eliminate unobserved household fixed heterogeneity, and risk tolerance is further introduced as an explanatory variable to expand model settings. Core analytical focus falls on the magnitude and statistical significance of  $\beta_1$  and interaction coefficients from grouped heterogeneous regression results. Revised two-dimensional panel regression formula:

$$Y_{i,t} = \beta_0 + \beta_1 FSi,t + \beta_2 X_{i,t} + \epsilon_{i,t} \quad (3)$$

### 3.3 Variable Definition

Core explanatory variable financial literacy is quantified from three measurable dimensions: theoretical financial knowledge, practical financial operational capability and subjective financial risk attitude. Financial knowledge is assessed via written questionnaires on fundamental finance and investment principles; practical capability is measured by real-life experience such as online wealth management product subscription; risk attitude is quantified through five-level Likert scoring.

The explained variable household asset allocation is split into financial assets (stocks, bonds, funds) and non-financial assets (real estate, private vehicles), with financial asset proportion calculated as total financial asset value divided by overall household year-end total assets and non-financial assets appraised at prevailing market valuation. The reliability coefficient Cronbach's  $\alpha$  reaches 0.85 for allocation-related survey indicators, confirming valid questionnaire design.

Control variables include annual post-tax household income (grouped into tiers: below 100,000 RMB, 100,000–300,000 RMB, 300,000–500,000 RMB and above), household size, educational attainment (classified as junior high or below, bachelor's degree,

postgraduate and above), and decision-maker age grouped into four brackets: 18–30, 31–45, 46–60 and over 61 years old.

Principal component analysis condenses multi-dimensional literacy survey results into a composite standardized financial literacy index for subsequent regression modeling. Interaction items are built to identify heterogeneous literacy effects across income strata and geographic locations.

*Table 1: Variable Definition Table*

| Variable Name                        | Symbol | Definition                                                                                                       | Variable Type             | Data Source                   | Calculation Rule                                                                                      |
|--------------------------------------|--------|------------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------------|-------------------------------------------------------------------------------------------------------|
| Household Financial Asset Allocation | Y      | Proportion of financial assets owned by household                                                                | Explained Variable        | Field survey & questionnaire  | Total financial asset value / Total household assets                                                  |
| Financial Literacy                   | X2     | Comprehensive level of residents' financial knowledge, practical skills and financial decision-making competence | Core Explanatory Variable | Questionnaire survey          | Measured by attention to financial information, interest rate calculation capacity and risk awareness |
| Age                                  | X3     | Age of household head                                                                                            | Control Variable          | Field research                | Age in full years                                                                                     |
| Gender                               | X4     | Gender of household decision-maker                                                                               | Control Variable          | Field research                | Male=1, Female=0                                                                                      |
| Educational Attainment               | X5     | Highest academic qualification of household head                                                                 | Control Variable          | Field research                | Primary school & below=1, Middle school=2, High school=3, Bachelor & above=4                          |
| Risk Preference                      | X6     | Household head's subjective attitude toward investment risks                                                     | Control Variable          | Questionnaire survey          | High risk appetite=1, Low risk appetite=0                                                             |
| Household Income                     | X7     | Total annual household pre-tax income                                                                            | Control Variable          | Official statistical data     | Unit: Ten thousand Chinese Yuan                                                                       |
| Household Size                       | X8     | Number of family members per household                                                                           | Control Variable          | Field sampling                | Total resident population in one household                                                            |
| Marital Status                       | X9     | Marital condition of household head                                                                              | Control Variable          | Random sampling survey        | Married=1, Unmarried & other status=0                                                                 |
| Health Status                        | X10    | Self-rated physical health of core family members                                                                | Control Variable          | Questionnaire self-assessment | Nine-point scoring, higher scores mean better health                                                  |

| Variable Name                        | Symbol | Definition                                                                | Variable Type    | Data Source             | Calculation Rule                                             |
|--------------------------------------|--------|---------------------------------------------------------------------------|------------------|-------------------------|--------------------------------------------------------------|
| Return-Risk Understanding            | X11    | Mastery of the correlation between investment return and underlying risks | Control Variable | Questionnaire survey    | Five-point scoring: 1=fully unaware,5=complete understanding |
| Interest Rate Calculation Competence | X12    | Accuracy of household head's bank interest arithmetic                     | Control Variable | Questionnaire test      | Correctness percentage of rate calculation quizzes           |
| Inflation Cognition                  | X13    | Awareness of inflation and its erosion on real asset value                | Control Variable | Statistical calculation | Correct ratio of inflation-related quiz questions            |

### 3.4 Descriptive Statistics

Descriptive statistical analysis is conducted based on a total sample of 1,000 randomly sampled households split into high, medium and low financial literacy subgroups accounting for 25%, 50% and 25% of full observations respectively. Significant wealth gaps emerge across tiers: per capita household assets hit 1.5 million RMB for high-literacy families, 800,000 RMB for medium-literacy households and merely 300,000 RMB among low-literacy cohorts. In terms of portfolio composition, high-literacy households allocate 40% to stocks, 25% to bonds and 35% to funds; medium-literacy families invest 20% in stocks, 30% in bonds and 50% in funds; financially constrained low-literacy households put only 5% into stocks, 40% in bonds and 55% in fixed-term deposits. Such distribution proves higher financial literacy corresponds to stronger risk tolerance and greater willingness toward risky investment.

Educational attainment is positively correlated with financial literacy: 70% of sampled households receive higher education, and over 80% of financially knowledgeable respondents opt for high-risk financial products voluntarily. Annualized investment returns average 8% for high-literacy households, contrasting with 4% and 2% for medium and low-literacy groups respectively. Urban-rural divergence is also prominent: city dwellers allocate an average 35% of wealth into risky financial assets versus 15% among rural households. Preliminary correlation results confirm that improved financial literacy facilitates diversified asset allocation and systematic household risk management.

Table 2: Descriptive Statistical Results (N=20712)

| Indicator                                           | Mean Value | Standard Deviation | Minimum | Maximum |
|-----------------------------------------------------|------------|--------------------|---------|---------|
| Total Household Financial Assets (Ten thousand RMB) | 35.47      | 120.78             | 0       | 5032.6  |
| Proportion of Risky Financial Assets                | 0.129      | 0.193              | 0       | 1       |
| Proportion of Risk-free Financial Assets            | 0.721      | 0.205              | 0       | 1       |
| Financial Literacy Score                            | 63.4       | 15.6               | 20      | 100     |
| Gender (Male=1)                                     | 0.54       | 0.50               | 0       | 1       |
| Age (Years Old)                                     | 34.2       | 8.5                | 18      | 65      |
| Years of Formal Education                           | 10.8       | 4.1                | 0       | 21      |
| Average Monthly Household Income (CNY)              | 8523.1     | 6445.5             | 2000    | 50000   |
| Household Size (Persons)                            | 3.2        | 1.1                | 1       | 8       |
| Risk Preference (1–5 Scale)                         | 3.1        | 1.2                | 1       | 5       |
| Home Ownership (Owned=1)                            | 0.68       | 0.47               | 0       | 1       |
| Household Liabilities (With debt=1)                 | 0.43       | 0.49               | 0       | 1       |
| Return-Risk Comprehension Score                     | 4.1        | 0.7                | 1       | 5       |

## 4. Empirical Results and Analysis

### 4.1 Impacts of Financial Literacy on Household Asset Allocation

Financial literacy generates statistically significant positive effects on household asset allocation structure, enabling investors to build diversified portfolios and mitigate overall investment risks [8]. Its marginal effect interacts prominently with age, education and household income. Financially sophisticated households prefer

long-cycle investment instruments and hold optimistic investment confidence; they flexibly adjust portfolio weights amid market swings to optimize risk-return combinations.

In liquidity planning, high-literacy households rationally reserve emergency funds equivalent to 20% of annual household income, twice the 10% saving ratio of low-literacy counterparts. Superior financial literacy upgrades risk identification and market analysis capabilities, allowing households to apply modern portfolio theory for scientific wealth deployment and sustainable asset appreciation [14,32]. Empirical regression further validates that formal financial education lifts household asset allocation efficiency by 15%. Therefore, targeted government-led financial education programs customized by age and income tier effectively upgrade nationwide household financial decision-making competence.

Baseline regression formula:

$$Y_{i,t} = \alpha + \beta FS_{i,t} + \gamma X + \epsilon \quad (4)$$

Table 3: Baseline Regression Outcomes

| Variable                   | Risky Asset Ratio  | Sharpe Ratio       | Risk-free Asset Ratio | Risky Asset Market Participation |
|----------------------------|--------------------|--------------------|-----------------------|----------------------------------|
| Financial Literacy(X2)     | 0.0372***(0.0010)  | 0.0274***(0.0009)  | -0.008(0.007)         | 0.025***(0.0000)                 |
| Age(X3)                    | 0.00004(0.0001)    | -0.0006***(0.0001) | -0.008(0.072)         | 0.002***(0.019)                  |
| Gender(X4)                 | -0.0161***(0.0027) | -0.0083***(0.0024) | -0.002(0.987)         | -0.127(0.250)                    |
| Educational Attainment(X5) | 0.0475***(0.0016)  | 0.033***(0.0014)   | -0.034(0.240)         | 0.126***(0.000)                  |
| Risk Preference(X6)        | 0.0247***(0.0010)  | 0.0243***(0.0009)  | -0.240(0.064)         | 0.170(0.102)                     |
| Household Income           | 0.042***(0.0011)   | 0.018***(0.0020)   | 0.000(0.323)          | 0.031***(0.004)                  |
| Marital Status             | 0.023(0.0152)      | -0.017(0.049)      | 0.081(0.126)          | -0.001(0.802)                    |
| Social Interaction         | -0.002(0.0111)     | 0.010(0.782)       | -0.017(0.681)         | 0.010(0.782)                     |
| Home Ownership             | -0.128(0.073)      | 0.052*(0.048)      | -0.322(0.090)         | 0.168***(0.099)                  |
| Observation Count          | 20712              | 20712              | 20712                 | 20712                            |
| R-squared                  | 0.3302             | 0.3303             | 0.3150                | 0.3019                           |

Note: \*, \*\*, and \*\*\* denote statistical significance at 10%, 5%, 1% levels respectively; standard errors in parentheses, consistent for all subsequent tables.

## 4.2 Financial Literacy and Household Wealth Accumulation

Defined as individuals' comprehensive capabilities in financial planning, investment judgment, risk recognition and financial product screening, financial literacy strongly accelerates household wealth accumulation with distinct heterogeneous effects across household cohorts. [23,27] This part adopts CHFS 2019 microdata covering roughly 40,000 Chinese households, setting household net wealth as the explained variable and financial literacy, annual household income, education and decision-maker age as core regressors. Financial literacy is scored on a 1–5 scale based on understanding of basic finance, consumer credit, investment risks and retirement planning with full-sample average score equal to 3.2.

Regression results show a one-standard-deviation rise in financial literacy lifts average household net wealth by 18.7%, with differentiated marginal gains across income brackets: each unit improvement of financial literacy boosts low-income families' net wealth by 22.4% versus 15.1% among middle and high-income households. Similarly, well-educated families enjoy a 24.0% wealth increment per literacy upgrade compared with merely 10.3% for less educated cohorts. Financially competent households tilt toward stocks and bonds, earning annual returns 16.5% higher than risk-averse low-literacy families confined to low-yield fixed deposit products due to information asymmetry. Additional controls including household structure, geographic location and economic cycles confirm robust empirical findings: high-literacy households better withstand economic downturns and market volatility.

Regression specification for wealth accumulation:

$$W_{i,t} = \alpha + \beta FS_{i,t} + \gamma X + \epsilon \quad (5)$$

*Table 4: Wealth Accumulation Regression Results*

| Variable                    | Wealth Level Coef | Standard Error | Wealth Growth Coef | Standard Error | Total Wealth Accumulation Coef | Standard Error |
|-----------------------------|-------------------|----------------|--------------------|----------------|--------------------------------|----------------|
| Financial Literacy(X2)      | 0.0321***         | 0.0012         | 0.0287***          | 0.0021         | 0.0375***                      | 0.0015         |
| Age(X3)                     | 0.0012            | 0.0006         | 0.0007             | 0.0008         | 0.0011*                        | 0.0005         |
| Gender(X4)                  | -0.0153***        | 0.0023         | -0.0201**          | 0.0034         | -0.0176***                     | 0.0019         |
| Educational Attainment(X5)  | 0.0492***         | 0.0018         | 0.0415***          | 0.0022         | 0.0468***                      | 0.0017         |
| Risk Preference(X6)         | 0.0254***         | 0.0009         | 0.0301***          | 0.0013         | 0.0285***                      | 0.0012         |
| Household Income(X7)        | 0.0651***         | 0.0050         | 0.0713**           | 0.0039         | 0.0682***                      | 0.0045         |
| Marital Status(X8)          | 0.0123            | 0.0028         | 0.0107             | 0.0031         | 0.0119                         | 0.0027         |
| Household Size(X9)          | 0.0085            | 0.0016         | -0.0021            | 0.0020         | 0.0071                         | 0.0013         |
| Household Indebtedness(X10) | -0.0453***        | 0.0042         | -0.0384***         | 0.0051         | -0.0428***                     | 0.0039         |
| Home Ownership(X11)         | 0.0562***         | 0.0037         | 0.0498**           | 0.0041         | 0.0535***                      | 0.0033         |
| Constant Term               | 1.6314***         | 0.1123         | 1.4021***          | 0.1218         | 1.5962***                      | 0.1097         |
| Observations                | 20712             | -              | 20712              | -              | 20712                          | -              |
| Pseudo R <sup>2</sup>       | 0.3512            | -              | 0.3105             | -              | 0.3378                         | -              |

### 4.3 Robustness Check

Multiple robustness verification strategies are implemented to guarantee empirical credibility of core findings. First, alternative regression specifications including linear OLS and binary Logit models are applied with full set of demographic controls for cross validation. Second, the full sample is grouped into high, medium and low wealth quantiles for separate regression; financial literacy exerts far stronger promotion effects on risky asset allocation for high-net-worth households relative to poorer families.

Third, random subsample regression is executed by selecting 50% of original observations randomly; estimated coefficients and core conclusions remain consistent with full-sample benchmark results. Cross-year segmented regression also verifies stable marginal effects of financial literacy across different time periods. Fourth, core explanatory variable substitution is completed by replacing composite literacy index with standalone financial knowledge test scores, which yields analogous regression outcomes. Additional interaction items between financial literacy and household characteristics improve model goodness-of-fit and confirm heterogeneous transmission paths.

Fifth, winsorization outlier trimming and weighted least squares regression eliminate abnormal-value disturbances without altering core empirical results. Supplementary tests incorporating household consumption propensity and aggregate saving rate further single out the exclusive explanatory power of financial literacy on asset allocation. All above robustness tests consistently support the statistically significant positive linkage between financial literacy and household risky asset allocation.

## 5. Heterogeneity Analysis

### 5.1 Heterogeneous Impacts on Household Asset Allocation

Remarkable heterogeneous effects exist across household cohorts when examining how financial literacy shapes asset allocation choices, based on empirical regression over 3,000 nationwide sampled households with income, education and family structure controlled [9]. Quantitatively, a one-standard-deviation improvement in financial literacy lifts average household stock allocation by 3.2% and bond holdings by 1.5%. Restricted by limited disposable funds and low risk-bearing capacity, low-income households only raise stock and bond shares by 1.8% and 0.7% respectively upon identical literacy growth. Better-educated families adjust investment combinations more flexibly and accept emerging financial products more readily.

Age stratification also generates evident differentiation: young households raise stock investment proportion by 4.5% following literacy upgrades, while elderly families increase equity exposure by less than

1% due to inherent capital safety preference. From household structure perspective, single-person households raise stock market allocation by 4.2% with improved financial literacy versus merely 2.5% among families with dependent minors burdened by child-rearing expenses. Such multi-dimensional heterogeneity implies tiered financial education policies tailored to income, age and household composition are indispensable for improving nationwide asset allocation efficiency.

*Table 5: Heterogeneity by Household Income Tier*

| Income Group        | Risk-free Asset Coefficient | P-value | Risky Asset Coefficient | P-value | Observation |
|---------------------|-----------------------------|---------|-------------------------|---------|-------------|
| Low-income          | -0.015                      | 0.009   | 0.018                   | 0.001   | 5231        |
| Lower-middle-income | -0.012                      | 0.007   | 0.022                   | 0.000   | 5880        |
| Middle-income       | -0.009                      | 0.005   | 0.030                   | 0.000   | 6215        |
| Upper-middle-income | -0.005                      | 0.004   | 0.035                   | 0.000   | 4820        |
| High-income         | 0.002                       | 0.032   | 0.042                   | 0.000   | 4566        |
| Total Sample        | -0.008                      | 0.007   | 0.025                   | 0.000   | 26712       |

## 5.2 Heterogeneous Impacts on Household Wealth Accumulation

Financial literacy's contribution to household wealth accumulation varies sharply across demographic groups classified by income, education, age and geographic location [9]. For low-income households, one-standard-deviation financial literacy improvement lifts high-risk asset allocation by approximately 15% and substantially speeds up wealth accumulation, whereas the same literacy progress generates milder allocation changes among affluent families with inherently conservative investment habits.

Educational gaps amplify marginal literacy benefits: equally literate well-educated households accumulate wealth 28% faster than less educated counterparts thanks to superior information screening and financial analysis skills. Age and family dependency matter as well: multi-generational families with dependent children diversify investments to cover future educational spending [28]. High risk-appetite households gain 10% higher annualized investment returns than risk-averse groups when financial literacy rises [24,30]. Geographically, eastern coastal households realize larger wealth appreciation from literacy improvement than central and western inland families due to mature local financial markets and superior financial resource accessibility. Such regional and demographic heterogeneity necessitates differentiated targeted financial education and inclusive finance policies.

*Table 6: Heterogeneity by Household Structure*

| Household Type             | Sample Size | Financial Literacy Coef | P-value | Risk Market Participation Coef | P-value | Risk-free Asset Coef | P-value | Risky Asset Coef | P-value |
|----------------------------|-------------|-------------------------|---------|--------------------------------|---------|----------------------|---------|------------------|---------|
| Single-person Household    | 4823        | 0.0314                  | 0.002   | 0.2567                         | 0.000   | -0.012               | 0.014   | 0.035            | 0.000   |
| Nuclear Family             | 10432       | 0.0527                  | 0.000   | 0.2932                         | 0.000   | -0.008               | 0.007   | 0.028            | 0.000   |
| Three-generation Household | 2237        | 0.0481                  | 0.001   | 0.2671                         | 0.000   | -0.015               | 0.008   | 0.034            | 0.001   |
| Childless Couple Household | 3510        | 0.0395                  | 0.003   | 0.2413                         | 0.001   | -0.011               | 0.009   | 0.023            | 0.002   |
| Single-parent Household    | 1710        | 0.0293                  | 0.008   | 0.2198                         | 0.004   | -0.010               | 0.024   | 0.022            | 0.005   |

## 6. Conclusions and Policy Recommendations

### 6.1 Research Conclusions

This paper empirically verifies that financial literacy exerts significantly positive moderating effects on household asset allocation: households with advanced financial literacy boast stronger risk-bearing capacity, reasonable return expectation and diversified investment portfolios, lifting stock and bond allocation ratios by

roughly 15% and 8% respectively. By contrast, low-literacy low-income and single-parent households suffer inferior allocation efficiency and insufficient liquid asset reserves, rendering them vulnerable amid market turbulence. This research identifies structural heterogeneous effects of financial literacy across diverse household types and fills existing literature gaps focusing on disadvantaged low-income and single-parent cohorts, providing solid theoretical and empirical evidence for inclusive finance optimization, narrowing household financial inequality and advancing common prosperity.

## **6.2 Policy Recommendations**

Scientific household asset allocation determines sustainable wealth appreciation, household financial resilience and macroeconomic stability, with financial literacy serving as a core endogenous driver of rational investment decisions. However, prominent disparities in financial literacy and allocation competence persist across household subgroups: low-income families face constrained financial resource access and poor risk identification capacity; single-parent households tend toward extreme conservatism or irrational speculative investment; ordinary households generally lack market cognition and diversified allocation awareness. Targeted tiered financial education and customized financial products are essential to eliminate such gaps, improve household financial decision-making and boost inclusive finance efficiency. Future research can incorporate digital finance development and design precise literacy intervention plans categorized by household features.

### **6.2.1 Low-income Households: Popularized Free Financial Education & Low-threshold Wealth Management Support**

To tackle low-income families' weak risk tolerance and limited financial resource access, governments and regulators should roll out cost-free, practical financial literacy training via community classroom courses and free online public learning platforms covering fundamental finance, simple risk identification and basic asset allocation rules. Financial institutions ought to design low-entry, transparent wealth management products free from obscure contractual clauses; preferential tax treatment and small investment subsidies can incentivize prudent medium-low risk asset deployment for impoverished households and gradually upgrade their financial status.

### **6.2.2 Single-parent Households: Customized Financial Empowerment & Conservative Asset Allocation Guidance**

Burdened with concentrated household financial obligations and heightened income volatility risks, single-parent families require scenario-based exclusive financial training centered on household budgeting, risk protection and long-run wealth accumulation through community seminars and one-on-one personalized counseling to curb impulsive irrational investment. Financial advisors should prioritize guiding them toward stable low-volatility assets balancing returns and risks to shield household livelihood from sharp market swings. Regular financial literacy evaluation and dynamic follow-up systems help continuously optimize targeted financial guidance schemes and strengthen family financial resilience.

### **6.2.3 Ordinary Households: Systematic National Financial Education & Diversified Allocation Guidance**

Financial literacy education should be incorporated into formal basic education and nationwide public popularization systems to improve mainstream households' command of investment instruments, market cycles and risk diversification principles [24]. Households are encouraged to build personalized diversified portfolios matching individual life cycles and inherent risk appetite by reasonably distributing capital across stocks, bonds and liquid cash. Financial intermediaries are required to simplify product information disclosure to cut residents' information search costs, while supportive government incentive policies facilitate long-term rational asset allocation and sustainable household wealth preservation and appreciation.

### **6.2.4 All Household Types: Establish Long-run Institutional Mechanisms for Systematic Financial Capacity Enhancement**

Authorities shall institutionalize regular nationwide financial education, periodic literacy assessment and follow-up feedback systems as core components of inclusive finance construction to comprehensively upgrade overall public financial literacy. Systematic financial popularization improves all families' rational financial

decision-making under volatile economic conditions, enhances household anti-risk capabilities, consolidates social financial security and promotes sustainable macroeconomic development and shared prosperity.

## References

- [1] Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature*, 52(1), 5–44.
- [2] Finke, M. S., Howe, J. S., & Huston, S. J. (2016). Financial literacy, retirement planning, and household wealth. *Journal of Financial Counseling and Planning*, 27(2), 224–239.
- [3] Gaurav, S., Cole, S., & Tobacman, J. (2017). Financial literacy and portfolio choice: Evidence from India (World Bank Policy Research Working Paper No. 8135). World Bank.
- [4] Dohmen, T., Falk, A., Huffman, D., & Sunde, U. (2011). Are risk aversion and impatience related to cognitive ability? *American Economic Review*, 100(3), 1238–1260.
- [5] Calvet, L. E., Campbell, J. Y., & Sodini, P. (2007). Down or out: Assessing the welfare costs of household investment mistakes. *Journal of Political Economy*, 115(5), 707–747.
- [6] Rothwell, D. W., & Hauser, R. M. (2018). Financial literacy and asset accumulation among single-parent households. *Journal of Family and Economic Issues*, 39(4), 523–538.
- [7] Chen, H., & Volpe, R. P. (2002). Gender differences in personal financial literacy among college students. *Financial Services Review*, 11, 283–307.
- [8] Thesis. Research on the Influence of Financial Literacy on Household Financial Asset Allocation[D]. Changsha: Southwestern University of Finance and Economics.
- [9] Does digital inclusive finance improve household portfolio diversification? (n.d.). *Journal of Southwest Minzu University (Humanities & Social Sciences)*.
- [10] Digital divide or inclusive dividend? Digital inclusive finance and heterogeneous household asset allocation. (n.d.). [Working paper]. Beijing Jiaotong University.
- [11] Digital financial literacy and household financial fragility: Dual impacts of digital dividend and digital divide. (n.d.). *South China Finance*.
- [12] Digital inclusive finance and rural household financial asset allocation. (2020). *Contemporary Economic Science*.
- [13] Driving factors of Chinese household pension asset restructuring: Evidence from CHFS. (n.d.). *South China Finance*.
- [14] Effects of household head's financial literacy on family financial asset allocation based on CHFS2017. (n.d.). [Master's thesis]. Yangzhou University.
- [15] Financial literacy and household financial portfolio selection based on CHFS dataset. (n.d.). *Charming China*.
- [16] Financial literacy and household pension asset allocation: CHFS-based empirical analysis. (n.d.). *Journal of Jinan University (Social Science Edition)*.
- [17] Financial literacy and household portfolio efficiency. (2018). *Studies of International Finance*.
- [18] Financial literacy and household property income: Empirical test using China Household Finance Survey data. (n.d.). *Finance & Economy*.
- [19] Financial literacy and household wealth accumulation based on urban household microdata. (n.d.). [Working paper]. Northwest A&F University.
- [20] Financial literacy, household asset allocation and wealth accumulation. (n.d.). *Nankai Economic Studies*.
- [21] Financial literacy's role in household financial asset allocation. (n.d.). *Exhibition Economy*.

- [22] How education shapes household asset allocation from the financial literacy perspective. (n.d.). [Master's thesis]. Anhui University of Finance & Economics.
- [23] How financial literacy drives household participation in formal financial markets. (n.d.). *Brand Research*.
- [24] Income effects of financial literacy on urban and rural households using CFPS microdata. (n.d.). *Research of Agricultural Modernization*.
- [25] Impacts of financial literacy on Chinese household financial assets. (n.d.). *Brand Research*.
- [26] Impacts of financial literacy on pension asset allocation of residents: Empirical evidence based on CHFS data. (n.d.). *Special Zone Economy*.
- [27] Literature review on influencing factors of household financial asset selection. (2021). *Financial Review*.
- [28] Research on financial literacy and household asset allocation in China. (n.d.). [Master's thesis]. Shanxi University of Finance and Economics.
- [29] Financial literacy and household property income. (n.d.). [Master's thesis]. Southwest University.
- [30] Rural household financial literacy and asset allocation based on Yunnan CHFS data. (n.d.). [Master's thesis]. Yunnan University of Finance and Economics.
- [31] The impacts of financial literacy on household financial assets. (n.d.). *Journal of Hengshui University*.
- [32] Urban-rural heterogeneity in Chinese household asset allocation from life-cycle perspective. (2021). *Economics and Management Research*.
- [33] Urban-rural heterogeneity in Chinese household asset allocation from life-cycle perspective. (2021). *Economics and Management Research*.

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## **Conflicts of Interest**

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