



Women's Bargaining Power and Household Stock Investment

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Abstract

This study investigates the effect of women's bargaining power on household stock investment. Using data from the 2019 wave of the China Household Finance Survey (CHFS), this study finds that women's bargaining power within the household was positively related to household stock investment. Specifically, we explored the mediating effects of financial information attention and the moderating effects of risk preference and financial literacy on the relationship between women's bargaining power and household stock investment. The results show that women's bargaining power improved household stock investment indirectly by increasing the spouses' attention to economic and financial information. We also find that wives' risk preference and financial literacy intensified the positive effect of women's bargaining power on household stock investment. The positive relationship between women's bargaining power and household stock investment was relatively strong for below-median wealthy households. In addition, the effect of women's bargaining power on household stock investment intensified with the increasing age of the wives. A discussion of the results and implications for policy making are included.

Keywords Women' bargaining power · Household stock investment · Financial literacy · Risk preference · Household financial decisions

Introduction

Household portfolio choice is beneficial for household wealth accumulation and consumption smoothing (Cocco, 2005). Classical asset allocation theories suggest that it is recommended for individuals or households to invest at least some proportion of their money in equities because of positive equity premium (Campbell, 2006). However, many household investors do not hold equities or hold relatively small proportions of their wealth in the stock market (Badarinza et al., 2016). Recently, more and more studies consider household financial investment behaviors as the result of joint decision making of married couples, and several studies explore the role of the spouses' negotiation process on household financial risky-asset investment (De

Palma et al., 2011; Jianakoplos & Bernasek, 2008; Pak & Babiarz, 2019; Yilmazer & Lich, 2015).

The collective model of household behavior posits that each spouse in the household has his or her own preferences (Browning & Chiappori, 1998; Chiappori, 1988, 1992). This model assumes that the demand of the household depends on the preferences of both spouses and the distribution of bargaining power between them. Bargaining power in a relationship refers to the relative ability of one spouse to influence joint decisions (Afoakwa et al., 2015) regarding financial matters, household responsibilities, or other shared concerns. The disparities in decision-making processes between men and women are often due to both innate personal characteristics and traditional gender norms (Barasinska & Schäfer, 2018). For example, women tend to be more risk averse (Jianakoplos & Bernasek, 1998) and more loss averse compared to men and are perceived as less proficient in mathematical and financial skills (Carr & Steele, 2010). In addition, women tend to have lower financial literacy than men in many countries (Fonseca et al., 2012; Lusardi & Mitchell, 2014). Based on differences in the spouses' individual characteristics, such as preferences, attitudes, knowledge and ability, one branch of the

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bargaining literature finds that the spouse's relative status within the household has significant impact on household economic and financial decision making, such as household consumption (Doss, 1996), wealth accumulation (Chawla & Svec, 2023), debt behavior (Tan et al., 2024), retirement investment (Lundberg & Ward-Batts, 2000) and risky investment (Yilmazer & Lich, 2015).

Both women's empowerment and gender equality have become key goals of the United Nations 2030 Agenda for Sustainable Development. The bargaining power of women within households reflects their status and control over family affairs. Exploring the role of women's bargaining power is not only helpful in optimizing household financial well-being but may also serve to promote the practice of women's empowerment at the household level. Although women have long had a lower socioeconomic status than men (Zhang, 2022; Zhang & Ma, 2017), this has changed to some extent in recent years. A better social environment for women's individual development brings more opportunities for females to enhance their voice in society. The improvement of women's objective social status can improve their right to discuss major family decisions to a certain extent. For example, Peng and Wu (2022) found that the improvement of the wife's relative education level within the household reduced the gender inequality in the division of housework. As a result, with the improvement of women's education, they have higher bargaining power within the household, and thus may exert greater influence on household decision-making processes (Sharma & Kota, 2019). Therefore, relative education between spouses is regarded as a suitable proxy to measure women's bargaining power (Afoakwa et al., 2020; Gibson et al., 2006; Jianakoplos & Bernasek, 2008; Mazzotta et al., 2019; Thomas, 1994). On one hand, a higher relative education level brings women better job opportunities and higher wage income. On the other hand, the ability of women to understand complex information related to important family affairs and to weigh benefits and costs when making complex financial decisions increases with her higher education level.

Especially in China, the deeply rooted Confucian philosophy shaped the relationship between wife and husband, requiring wives to show obedience and deference to their husbands (Graham & Lam, 2003). The subordinate status of women, rooted in Confucianism, limits their say in household affairs and well-being within marriage (Jia et al., 2025). However, more recently, China has not only guaranteed the same rights and status for women and men through legislation (Ma, 2024) but has also elevated women's status and promoted women's development by enhancing their employment and education opportunities. First, legal protection for women's rights have been strengthened. According to the Marriage Law of the People's Republic of China (1980), wife and husband have equal rights in controlling

economic resources within the household. Second, women's opportunities to enter the labor market and access to education have increased significantly. As a result, the average education level of women in China has increased and even starts to be higher than that of men (Peng & Wu, 2022). The gender gap in the average level of education has also narrowed.¹ Therefore, it is meaningful to explore how the advancement of women's status is reflected in household decision-making processes in China.

This study mainly focuses on the relationship between women's bargaining power and household stock investment in China, enriching the literature on both the bargaining process between married partners and the determinants of household risky-asset investments. Based on the collective model and empirical research, we investigate the moderating effects of the respondent's risk preferences and financial literacy, on the effect of women's bargaining power on household stock investment. The results show that the effect of women's bargaining power is intensified by their risk preference and financial literacy, and the financial literacy has less influence than risk preference. In addition, this study considers the effect of attention to financial information, mediating the impact of female bargaining power on household stock investment. We find that women's bargaining power may increase the probability of stock investments and increase the household stock asset proportion by enhancing the respondent's attention to economic and financial information.

The remainder of this study is designed as follows. Sect. "Theory" reviews the literature about spouses' bargaining power and household stock investment and formulates the hypotheses. Sect. "Data and Methodology" introduces the data source, measurements, and regression models used in the empirical analysis. Sect. "Results" shows summary statistics, regression results, and main findings. Robustness checks and endogenous issues are reported in Sect. "Discussion". Finally, Sect. "Discussion" concludes, and provides discussion and implications of the findings.

Theory

Literature Review

The household collective model suggests that the maximization of household utility depends on each person's preferences within the household and the distribution of power

¹ According to the National Bureau of Statistics of China (2021), the proportion of female graduate students in higher education reached 50.9% of all graduate students, and the proportion of female students in regular college and adult-college students reached 51.0% and 58.0%.

https://www.stats.gov.cn/english/PressRelease/202112/t20211231_1825801.html

within them. The factors influencing the distribution of power between spouses are commonly used as indicators of their relative bargaining power in making major household decisions. Several such proxies to quantitatively measure bargaining power include income and employment (Luke & Munshi, 2011; Yilmazer & Lich, 2015), assets rights and ownership (Allendorf, 2007; Beegle et al., 2001; Datta, 2006), education difference (Afoakwah et al., 2020; Jianakoplos & Bernasek, 2008; Thomas, 1994), and age difference (Afoakwah et al., 2020; Gibson et al., 2006).

However, women's income related to labor decisions may not be a good proxy for women's bargaining power because it is endogenous (Doss, 1996, 2013). For example, Doss (1996) explains that wage income may be influenced by labor decisions, or a women's low wage income may be the result of their own choice to stay at home and not work. Therefore, it is difficult to assess the causal relationship between women's bargaining power and their income. In this study, the education difference between wife and husband is used as a measure of women's bargaining power. Elder and Rudolph (2003) find that household decisions are more likely to be made by the spouse that has the highest education. Fonseca et al. (2012) state that spouses are more dominant in financial activities when their education increases relative to that of their partners. Using relative education as a measure of women's bargaining power assumes that women with higher education level than their husband have greater influence over household stock investment and should, therefore, sway the results in their preferred way.

In terms of the relationship between women's bargaining power and household investment in risky assets (such as stock), the conclusions are mixed (Jianakoplos & Bernasek, 2008; Yilmazer et al., 2010). Yilmazer and Lyons (2010) find that women with less education compared to their husbands preferred more risky investments if they were over 5 years younger, or over 3 years older than their husbands. Jianakoplos and Bernasek (2008) find that spouses' bargaining power did not significantly impact household financial risk taking, inconsistent with the collective model.

Hypotheses

Information, including different information sources (Bonaparte et al., 2020), has indispensable effects on decision making, especially for stock market investments (Barber & Odean, 2008; Liang & Guo, 2015). Investors may acquire information related to the economic situation and the stock market through different channels. On one hand, people may learn about the stock market by online channels, such as the Internet (Feng et al., 2024), social media, or TV (Zhao & Xiao, 2023). On the other hand, investors may obtain information from people directly, by social

interaction (Li et al., 2022; Liang & Guo, 2015). Information that is helpful for investors to understand the financial market and provides knowledge about financial products may also facilitate stock market participation. Peng et al. (2022), using data from the China Household Finance Survey (CHFS), find that the investor's attention to financial information positively impacts the possibility of risky asset allocation. However, their study considers the household decision as a unitary decision-making process by only considering the characteristics of the head of household, while our study focuses on the role of the bargaining process between wife and husband in household stock investment decision making.

Traditionally, Chinese husbands have been considered more capable of making financial decisions, but the bargaining power of women in household affairs has been increasing. In the Fourth Survey of Women's Social Status in China (National Women's Federation of China & National Bureau of Statistics of China, 2021) it has been estimated that more than 80% of major family decisions are discussed between spouses, including "investments/loans" and "buying/building a house", with the wife's involvement increasing from 14.8 to 15.6% since 2010. This shows it has become more and more common for married couples to make joint decisions. Hence, it is important to consider the role of differences in personal characteristics and bargaining power between partners to understand financial choices and outcomes for the household (Van Raaij et al., 2020). Partners who have greater bargaining power have incentives to allocate family resources the way they prefer. For example, household expenditure on family health and child health reflects women's preferences more than their husbands' if women have greater control over economic resources within the household (Thomas, 1990). In such cases, the results of household decisions depend more on women's behaviors and their preferences. On one hand, women who have greater bargaining power in family financial decision making have an incentive to actively pay attention to market information that is beneficial for optimizing family asset allocation. On the other hand, in households where women participate in financial decisions, husbands need to share information and discuss the details of how to arrange the financial resources with their wives. Although men generally are more overconfident than women in stock investment (Barber & Odean, 2001) husbands behave differently when they need to communicate with their wives about financial decisions (Ashraf, 2009). Therefore, joint decisions made by married couples reflect both wives' and husbands' perspectives. Marital status may change and mitigate the extent men overestimate their ability. Partners communicate with each other about their thoughts towards investment plans, exchange the financial information they

gathered, and discuss the stock's performance while making stock investment decisions. Therefore, when husbands consider the opinions of their wives, they may be more proactive in gathering information to support their perspectives so that they may easier reach an agreement with their wives in the way they prefer. We state the following hypothesis (see also Fig. 1).

H1 *Women's bargaining power enhances household stock market participation by increasing their attention to economic and financial information.*

According to the collective model, married partners have different preferences with different influence on household choices (Gibson et al., 2006; Pak & Babiarz, 2019). Among these preferences, the risk preferences of wife and husband are regarded as key characteristics that may bring conflict between spouses. Friedberg and Webb (2006), using data from the Health and Retirement Study (HRS), a longitudinal survey of older Americans, found that if the husband has more bargaining power, the probability of the household to invest in equities is influenced by the husband's risk aversion, but when the wife has more bargaining power, the effect is not statistically significant. Yilmazer and Lich (2015), also using data from HRS, found that the risk tolerance of the spouse who has more bargaining power has positive impact on household risky-asset investments, thus providing support for the collective model. We propose the following hypothesis (see also Fig. 1).

H2 *Risk preference moderates the relationship between women's bargaining power and household stock investment.*

Another factor possibly leading to conflict in choices between men and women is financial literacy (Banner & Neubert, 2016; Lusardi & Mitchell, 2014). Peng et al. (2022) show that financial literacy of investors had a positive effect on their risky investments. With the increasing complexity and richness of financial information, it is more and more important for investors to acquire both basic and sophisticated financial literacy. Spouses who have a higher level of financial literacy may have a better understanding, ability, and self-confidence to make optimal portfolio choices (Rehman & Mia, 2024). We propose the following hypothesis (see also Fig. 1).

H3 *Financial literacy moderates the relationship between women's bargaining power and household stock investment.*

In Fig. 1, Household stock investment (stock) is the dependent variable in the analysis, and Women's bargaining power (WBP) is the independent variable. Financial information attention serves as a mediating variable in the relationship between WBP and stock. Risk preference and financial literacy are two moderating variables, indicating that the relationship between WBP and stock is influenced by these two moderators.

Data and Methodology

Data

The data in this paper are from the 2019 wave of the China Household Finance Survey (CHFS). The 2019 wave of

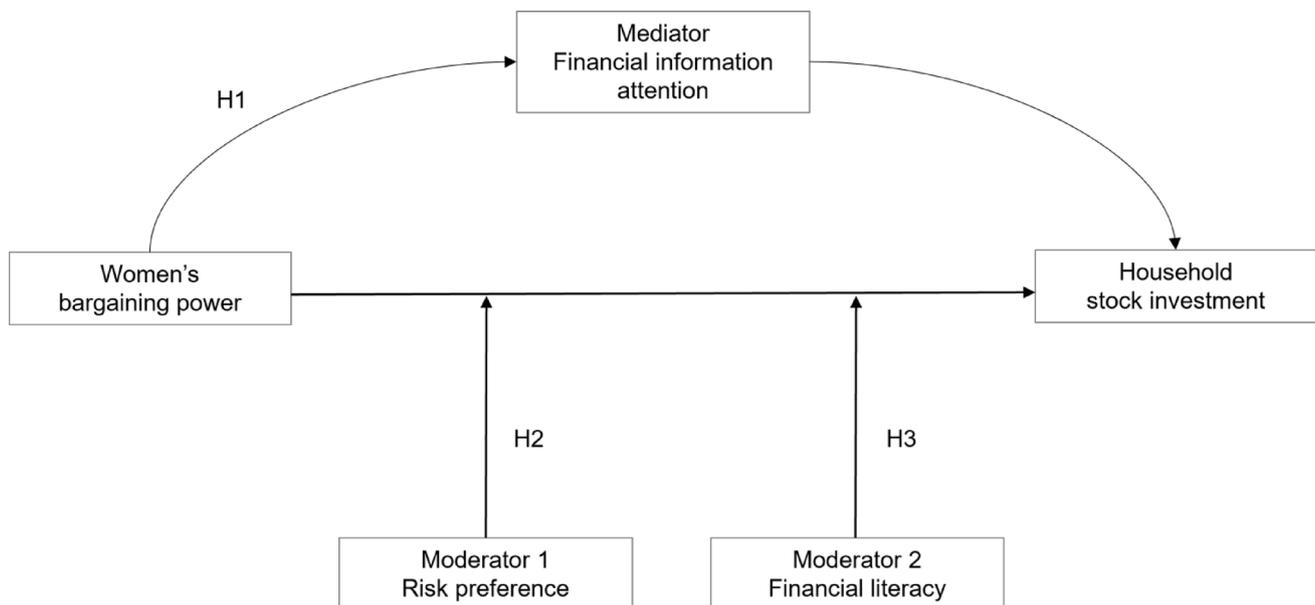


Fig. 1 Theoretical framework

CHFS covered 29 provinces (including autonomous regions and municipalities directly under the Central Government), 170 cities, and 345 districts/counties across the country, representing both the national and provincial levels of the population. The 2019 wave of CHFS includes rich household information, including demographic characteristics, assets and liabilities, insurance, income and expenditure, financial knowledge and risk attitude. The survey provides a comprehensive and detailed description of the economic and financial behaviors of Chinese households, and thus offers suitable data to analyze household stock investment behaviors.

In CHFS 2019, the respondents of the questionnaire were those who knew the financial situation of the family best, referred to as financial respondents (FR). In each household, either the wife or the husband was the financial respondent. Regarding the financial knowledge and attitude module, only the information of the financial respondent was collected. The attention to economic and financial information, financial literacy, and risk preference information referred to the financial respondent exclusively. In other words, if the financial respondent was the wife (husband), the risk preference information of this household referred to the wife's (husband's) preference.

Since this paper focuses on the household bargaining process, single individuals were excluded. Furthermore, the analysis focuses on households living in urban areas because the proportion of rural households investing on the stock market was too low for statistical analysis (less than 0.5%). After data cleaning and excluding households with missing and invalid key variables, 6,183 households were finally used for empirical research in this paper.²

Measures

Dependent Variables

Although some other financial assets such as corporate bonds may also be risky, CHFS data indicate that only a very small fraction of households hold any bonds,³ we focus on stock investment behaviors to explore household risky asset investments. The dependent variable was household stock investment. We used two measures capturing household stock investments. The first measure was a dummy variable assigned a value of 1 if the household owned stock

and 0 otherwise, referred to as *Stock*. The second measure was a continuous variable for the share of stock value in total household financial assets, referred to as *Proportion*.

Independent Variables

The key independent variable was women's bargaining power (WBP), captured by the education difference between wife and husband, that is the wife's education level minus the husband's education level.⁴ The higher WBP, the greater the women's influence on household decisions was assumed to be. We also constructed an alternative measurement of women's bargaining power (WBP2) for use in the robustness check. In addition to education this measure includes the occupation difference and whether the wife was the household head.⁵ WBP2 was a count of the number of these aspects in which women were more dominant.

Mediating Variables

The mediating variable was the financial respondent's (FR) attention to economic and financial information (*FinInform*) measured by the questions "How much attention do you pay to economic and financial information in daily life?" The answers were scored from 0 (*never*) to 5 (*always*). We assumed that higher bargaining power of the wife would be associated with the couple's higher financial information attention, while the latter would be associated with more investment in stocks.

Moderating Variables

Lusardi and Mitchell (2011) measured financial literacy by three survey questions focused on interest compounding, inflation, and risk diversification. The first two questions are virtually the same in the 2019 wave of CHFS (see the Appendix). However, the risk knowledge question in the 2019 wave of CHFS was only asked to respondents who were to some extent familiar with investments including 41% of the sample (see the Appendix). We coded responses to the risk-related question as incorrect (0) if participants had no knowledge of stocks, bonds, or mutual funds, or replied incorrectly to the risk question. Our three-item financial literacy question resulted in scores varying from 0 to 3. In addition, risk preference (*Risk*) was measured on a 5-point

² We excluded individuals that were under the legal age for marriage and those over 65 years old. We also excluded unmarried individuals and households with negative or zero total income. Finally, we applied winsorization to the data of income at the 99% level, and wealth and debt at both the 1% and 99% levels.

³ In the 2019 wave of CHFS, only 0.29% of households held bonds. Besides, the 2017 wave of CHFS shows that, among the 0.56% of bond-holding households, only 5.38% invested in corporate bonds.

⁴ The individual education level was categorized into six ordered levels: 0=illiterate, 1=primary school, 2=junior high school, 3=high school/ technical high school, 4=college/ vocational school, 5=Master, 6=PhD.

⁵ The head of household in CHFS2019 refers to the person who plays a decisive role in family affairs.

self-reporting scale with higher numbers corresponding to higher risk tolerance (see the Appendix).

Control Variables

The control variables in this study included demographic characteristics of the FR, household structure and economic characteristics, and regional variables. First, we controlled for gender, age, health, occupation categories (*Occup*) of the FR, and whether either of the spouses worked in financial industry (*FinIndustry*). Because women's bargaining power was measured by the education gap between partners, we added the education of the husband as a control variable in analysis. The FR's gender was a dummy variable indicating if the financial respondent was female (1) or male (0). In addition to the FR's gender, age, occupation and health, a range of household variables such as the household's total income (*Income*), total debt (*Debt*), net worth (*Wealth*), ownership of house property (*House*), number of children (*Child*), number of other members within the household (*Other*), and regional variables, was included. The natural logarithms of income, debt, and wealth were used in the statistical analysis.

Model

The dependent variable in this study was household stock investment. We had two measures of household stock investment. The first measure was a binary variable indicating whether the household owned stock. The share of stock assets in total financial assets of the household was used as the second measure of stock investment. We used Eq. 1 to examine the effects of women's bargaining power on household stock holding and the proportion of stock assets, where Y_i was the measurement of household stock investment, including $Stock_i$ and $Proportion_i$. WBP_i was the independent variable. $Gender_i$ represented the gender of the FR_i in the household. FL_i denoted the financial literacy of FR_i and $Risk_i$ denoted the risk preference of FR_i . In addition, the variable of $Controls_i$ was added representing the other control variables. To investigate the effect of women's bargaining power on the probability of the household to participate in the stock market, a series of Probit regressions were conducted on $Stock_i$. When Y_i denoted $Proportion_i$, Tobit regressions were conducted because the stock proportion was left-censored at zero.

$$Y_i = \beta_0 + \beta_1 WBP_i + \beta_2 Gender_i + \beta_3 FL_i + \beta_4 Risk_i + \beta_5 Controls_i + \epsilon_i \quad (1)$$

Further, to explore the mediating effect of financial information attention on the relationship between women's

bargaining power and household stock investment, we conducted regressions according to Eq. 2 and Eq. 3.

$$\begin{aligned} FinInform_i &= \alpha_0 + \alpha_1 WBP_i + \alpha_2 Gender_i \\ &+ \alpha_3 FL_i + \alpha_4 Risk_i \\ &+ \alpha_5 Controls_i + \delta_i \end{aligned} \quad (2)$$

$$\begin{aligned} Y_i &= \gamma_0 + \gamma_1 WBP_i + \gamma_2 Gender_i + \gamma_3 FL_i \\ &+ \gamma_4 Risk_i + \gamma_5 Controls_i \\ &+ \gamma_6 FinInform_i + \gamma_i \end{aligned} \quad (3)$$

Next, we investigated the moderating effects of risk preference and financial literacy on the relationship between women's bargaining power and household stock investment. A series of interaction terms were added in Eq. 4. $Chars_i$ denotes the characteristics of risk preference and financial literacy of the FR_i . Therefore, when $Chars_i$ represents the risk preference of the FR_i , we estimated whether the effect of women's bargaining power was weakened or intensified by women's risk preference. The estimation was the same for financial literacy.

$$\begin{aligned} Y_i &= \theta_0 + \theta_1 WBP_i + \theta_2 Gender_i + \theta_3 FL_i + \theta_4 Risk_i \\ &+ \theta_5 Controls_i + \lambda_1 WBP_i \times Gender_i \\ &+ \lambda_2 WBP_i \times Chars_i + \lambda_3 Chars_i \times Gender_i \\ &+ \lambda_4 WBP_i \times Chars_i \times Gender_i + \sigma_i \end{aligned} \quad (4)$$

Results

Descriptive Statistics

Table 1 shows descriptive statistics for all variables. Panel A of Table 1 shows the variables for the full sample, whereas Panel B of Table 1 shows the variables for the subsamples of households categorized by gender of the financial respondents.

Panel A of Table 1 shows that about 10% of households invested in stock. The average stock asset proportion of household total financial assets was about 1%. Most Chinese households did not invest in stock or invested less in stock. This is consistent with findings by Cooper and Zhu (2017). The mean value of women's bargaining power was about -0.17, meaning that wives typically had a lower education level than their husbands. This indicates that women on average had relatively little bargaining power in the household. Their opinions, therefore, were probably not considered enough when making major household decisions. The average risk preference score was 1.99 on the 5-point scale, indicating that Chinese people on average preferred less risk when considering asset allocation. The average financial literacy score was 0.90 out of 3, which

Table 1 Descriptive statistics

	Panel A: Full sample											Panel B: Subsample by gender of financial respondent										
	Female						Male					Female						Male				
	N	Mean	Min	Max	Median	SD	N	Mean	Median	Mean	Median	N	Mean	Median	Mean	Median	N	Mean	Median			
Stock	6183	0.10	0	1	0	0.30	3260	0.09	0	0	2923	0.11	0	0.11	0	2923	0.09	0	0			
Proportion	6094	0.01	0	0.78	0	0.05	3212	0.01	0	0	2882	0.01	0	0.01	0	2882	0.01	0	0			
WBP	6183	-0.17	-3	3	0	0.83	3260	-0.06	0	0	2923	-0.29	0	-0.29	0	2923	-0.06	0	0			
WBP2	1216	0.79	0	3	1	0.87	636	0.98	1	1	580	0.58	0	0.58	0	580	0.98	1	0			
Female gender	6183	0.53	0	1	1	0.50	3260	1.89	2	2	2923	2.10	2	2.10	2	2923	1.89	2	2			
Risk	6183	1.99	1	5	2	1.11	3260	0.82	1	1	2923	0.99	1	0.99	1	2923	0.82	1	1			
FL	6183	0.90	0	3	1	0.93	3260	1.90	2	2	2921	2.14	2	2.14	2	2921	1.90	2	2			
FinInform	6179	2.02	1	5	2	1	3258	2.73	3	3	2923	2.71	3	2.71	3	2923	2.02	2	2			
Edu_h	6183	2.72	0	6	3	1.08	3260	43.35	44	44	2923	46.63	47	46.63	47	2923	2.72	3	3			
Age	6183	44.9	21	65	45	9.38	3260	3.51	3	3	2923	3.58	4	3.58	4	2923	44.9	44	47			
Health	6183	3.54	1	5	4	0.91	3260	1.89	2	2	2923	2.15	2	2.15	2	2923	3.54	3	4			
Occup	6183	2.02	1	3	2	0.63	3260	0.03	0	0	2923	0.04	0	0.04	0	2923	2.02	2	2			
FinIndustry	6183	0.03	0	1	0	0.18	3260	0.82	1	1	2923	0.77	1	0.77	1	2923	0.03	0	0			
Child	6183	0.79	0	6	1	0.83	3260	0.73	0	0	2923	0.79	1	0.77	1	2923	0.79	1	1			
Other	6183	0.75	0	7	0	0.92	3260	11.13	11.32	11.32	2923	11.15	11.34	11.15	11.34	2923	0.75	0	1			
Income	6183	11.14	0.14	13.40	11.32	1.39	3260	12.98	13.5	13.5	2923	13.02	13.53	13.02	13.53	2923	11.14	11.32	11.34			
Wealth	6183	13	-11.37	15.95	13.5	3.49	3260	5.91	0.69	0.69	2923	5.58	0	5.58	0	2923	13	13.5	13.53			
Debt	6183	5.75	0	14.03	0.69	5.88	3260	0.91	1	1	2923	0.91	1	0.91	1	2923	5.75	0.69	0			
House	6183	0.91	0	1	1	0.29	3260	0.45	0	0	2923	0.46	0	0.46	0	2923	0.91	1	1			
East	6183	0.45	0	1	0	0.50	3260	0.25	0	0	2923	0.26	0	0.46	0	2923	0.45	0	0			
West	6183	0.26	0	1	0	0.44	3260	0.25	0	0	2923	0.26	0	0.26	0	2923	0.26	0	0			

(1) Female gender, Risk, FL, FinInform, Age, Health, Occup are all characteristics of financial respondents. (2) The variable Edu_h denotes the level of husband's education

was lower than 1, showing they had relatively low financial literacy.

Panel B of Table 1 shows that the share of households investing in stock was higher when the FR was the husband (11%) than when it was the wife (9%). The average risk preference of female FRs (1.89) was lower than that of male FRs (2.10), consistent with findings that women are generally more risk averse than men (Almenberg & Dreber, 2015; Jianakoplos & Bernasek, 1998). Regarding financial literacy (*FL*), the situation was similar. The average financial literacy of females was 0.82, which was lower than the 0.99 for males. In addition, women's attention to economic and financial information (1.90) was also lower than men's (2.14).

Figure 2 shows the average proportion of stock holding and stock asset proportions by different levels of women's bargaining power. For households with negative WBP (women with low bargaining power), 7% of households invested in the stock market. In contrast, for households with positive WBP (women with the same or greater bargaining power as the husband), 11% of households invested in the stock market. This indicates that households in which women have the same or higher bargaining power than men are more likely to invest in stock. The different distribution of the average proportion of stock to total financial assets shows similar results. Figure 3 shows the average women's bargaining power across different situations of stock holding. On average, wives had less bargaining power than husbands regardless of whether the household invested in stock. This result shows that there was still a gender gap between the education of married partners in Chinese households. This is consistent with the findings on educational assortative mating, which suggest that Chinese women are

typically more likely to marry men with higher education level than their own, although the educational gap between partners has been narrowing (Qian & Qian, 2014; Xu et al., 2014). However, for households that invested on the stock market, the mean value of WBP was larger than for other households.

Regressions

Mediation Effect

The relationship between women's bargaining power and household stock investment has been examined by Probit regressions (for stock holding) and Tobit regressions (for investment proportion). The dependent variables of Columns 1 and 3 in Table 2 are stock holding (*Stock*), whereas those of Columns 2 and 4 are proportion of stock assets (*Proportion*). The regression results in Table 2 show that women's bargaining power had a significant positive influence both on stock holding ($p < .01$) and stock asset proportion ($p < .05$).

Next, the regression analysis from Eq. 1 to Eq. 3 was conducted to explore the mediation mechanism. Financial information attention was controlled in Columns 3 and 4 in Table 2. It shows that the positive impact of women's bargaining power was still significant and the coefficient of information attention was also significant and positive ($p < 0.01$). It can also be noticed that the positive effect of women's bargaining power decreased when information attention was controlled. The R-squares of the regressions in Columns 3 and 4 were slightly higher than those in Columns 1 and 2. Column 5 examined the significant positive ($p < 0.01$) relationship between women's bargaining power

Fig. 2 Proportion of household stock investment by different level of women's bargaining power

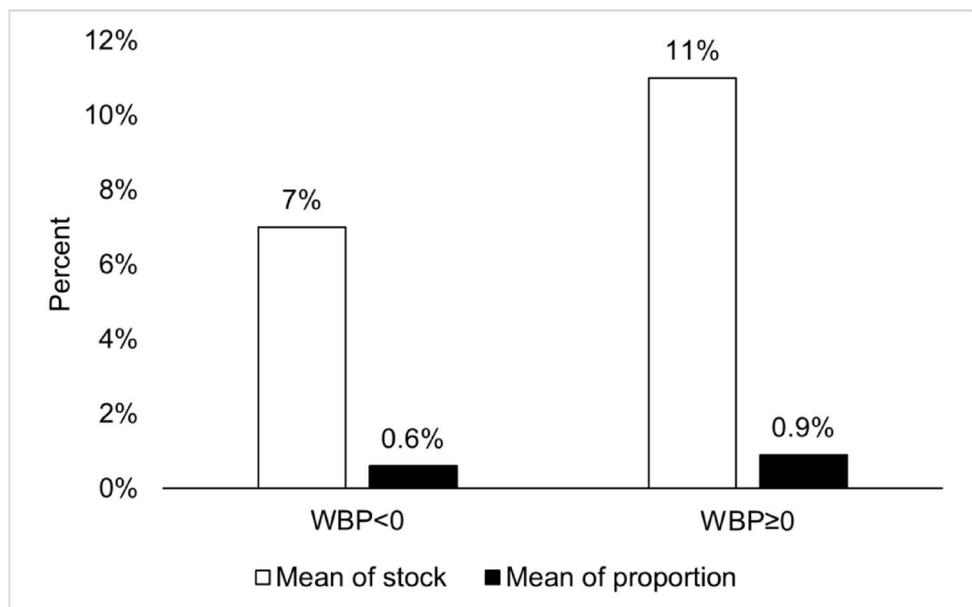
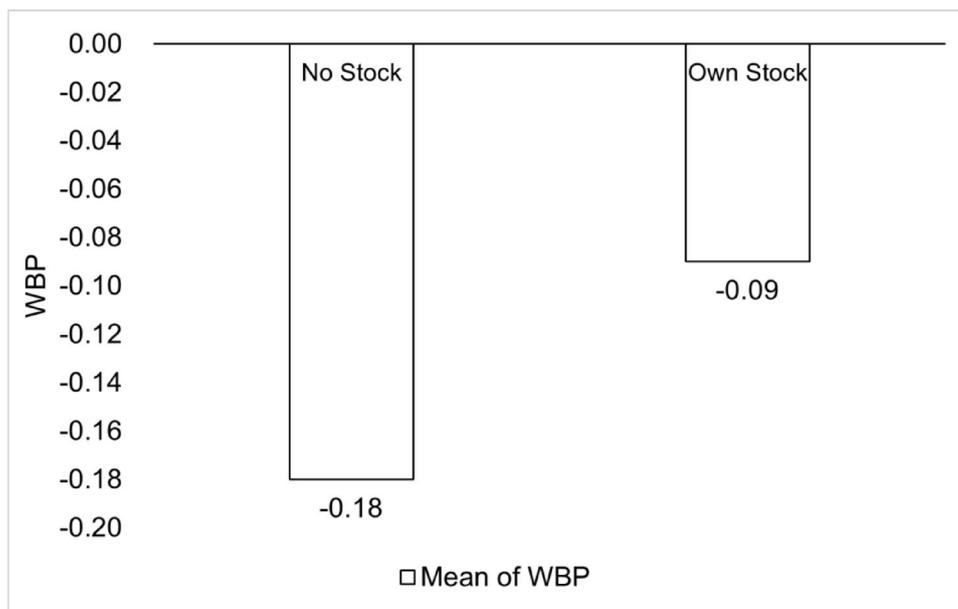


Fig. 3 Average WBP by different value of stock holding

and financial information attention of FR. Therefore, the positive mediation mechanism of the spouses' attention to economic and financial information was confirmed by these results, providing support for Hypothesis 1.

Furthermore, the results in Table 2 show that risk preference and financial literacy are both positive and significantly related to the stock investment of the household ($p < .01$). However, the FR's gender had no significant effect on stock investments. The coefficient of gender in Column 5 was negative and significant ($p < .01$), indicating that female financial respondents tended to pay less attention to financial information than male financial respondents. Whether or not there was at least one partner working in the financial industry had a strong positive impact on stock holding of the household, while having no significant effect on the stock asset proportion. In addition, total household income had a stronger positive effect on household stock holding than on the stock asset proportion, while the effect of wealth was higher on stock asset proportion.

Table 3 shows the direct and indirect effects of women's bargaining power on stock holding (Panel A) and the proportion of stock assets (Panel B), with financial information attention as the mediator. The results in Table 3 show that women's bargaining power was significantly associated with financial information attention, and financial information attention had a significant positive relationship with household stock holding (Panel A), and with household stock asset proportion (Panel B). The total effects, direct effects, and indirect effects were all significant. Therefore, this analysis further supported Hypothesis 1, that is women's bargaining power positively influenced household stock investment by increasing the spouses' attention to financial information. The results also show that the mediation effect

was incomplete because the indirect effect was smaller than the total effect. In addition, the indirect effect of financial information attention was stronger and accounted for a larger proportion in the total effect when the dependent variable was stock asset proportion.

Moderation Effects

We investigated whether the relationship between women's bargaining power and household stock investment was reinforced or weakened by financial literacy and risk preference. The results are shown in Table 4. Columns 1 and 2 show the effects of women's bargaining power and their effect in interaction with risk preference and gender of the FR, respectively, and also a 3-way interaction with both risk preference and gender. The dependent variables in Columns 1 and 3 are stock holding and in Columns 2 and 4 they are proportion of stock investments, so we can explore the moderation effects in different dimensions of household stock investment. We find that women's bargaining power had significant and positive effects on both stock holding and stock proportion in all columns, which is consistent with the results in Table 2. The 3-way interaction coefficient of women's bargaining power with both risk preference and gender was positive and significant in Column 1 ($p < .1$) and Column 2 ($p < .05$). This indicates that the effect of women's bargaining power on household stock investment was positively associated with women's risk preference. In other words, when women had greater bargaining power, their higher preference for risk increased the probability of the household to invest in stocks, and the proportion of stock investments. These results supported Hypothesis 2.

Table 2 Mediation effects of financial information attention on the relationship between women's bargaining power and household stock investment

	(1)	(2)	(3)	(4)	(5)
	Probit	Tobit	Probit	Tobit	OLS
	Stock	Proportion	Stock	Proportion	FinInform
WBP	0.019*** (0.005)	0.026** (0.010)	0.016*** (0.005)	0.020* (0.010)	0.088*** (0.016)
FinInform			0.025*** (0.003)	0.054*** (0.008)	
Female gender	0.006 (0.007)	0.004 (0.015)	0.011* (0.007)	0.017 (0.014)	-0.149*** (0.024)
Risk	0.029*** (0.003)	0.059*** (0.007)	0.024*** (0.003)	0.048*** (0.007)	0.196*** (0.013)
FL	0.043*** (0.004)	0.075*** (0.009)	0.037*** (0.004)	0.062*** (0.009)	0.199*** (0.014)
Edu_h	0.033*** (0.005)	0.045*** (0.010)	0.028*** (0.005)	0.036*** (0.010)	0.193*** (0.014)
Age	0.003*** (0.000)	0.005*** (0.001)	0.003*** (0.000)	0.005*** (0.001)	0.009*** (0.002)
Health	-0.001 (0.004)	0.001 (0.009)	-0.002 (0.004)	-0.001 (0.009)	0.030** (0.013)
Occup	0.003 (0.006)	0.018 (0.012)	0.004 (0.006)	0.020 (0.012)	0.012 (0.020)
FinIndustry	0.038*** (0.014)	0.027 (0.025)	0.027* (0.014)	0.000 (0.026)	0.470*** (0.067)
Child	-0.003 (0.004)	-0.001 (0.010)	-0.002 (0.004)	0.000 (0.010)	-0.013 (0.015)
Other	-0.008** (0.004)	-0.021** (0.009)	-0.008* (0.004)	-0.019** (0.009)	-0.007 (0.013)
Income	0.018*** (0.005)	0.011 (0.007)	0.016*** (0.005)	0.009 (0.007)	0.033*** (0.010)
Wealth	0.014* (0.008)	0.075*** (0.009)	0.013* (0.007)	0.070*** (0.009)	0.013*** (0.004)
Debt	0.002*** (0.001)	0.000 (0.001)	0.002*** (0.001)	0.000 (0.001)	0.003 (0.002)
House	-0.030* (0.017)	-0.086** (0.032)	-0.027 (0.017)	-0.076** (0.032)	-0.013 (0.039)
East	0.030*** (0.009)	0.037* (0.019)	0.030*** (0.009)	0.040** (0.019)	0.003 (0.026)
West	-0.017* (0.010)	-0.018 (0.023)	-0.018* (0.010)	-0.020 (0.023)	0.078*** (0.030)
Constant		-2.125*** (0.162)		-2.055*** (0.157)	-0.062 (0.142)
N	6,183	6,094	6,179	6,090	6,179
R ²	0.297	0.430	0.309	0.453	0.256

(1) Standard errors in parentheses. (2) Estimated marginal effects are reported for the probit models. (3) The variable Edu_h denotes the level of husband's education

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The coefficient of the 2-way interaction term of women's bargaining power and risk preference in Column 1 was significant ($p < .1$) and negative, suggesting that the husband's risk preference weakened the positive effect of women's bargaining power. The reason may be that husbands influenced their wives' choices by sharing information and discussing with them. Even when women had greater influence

Table 3 Mediating effects of financial information attention

Panel A			
Stock	Coefficient	Percent of effect	z
Indirect effect	0.004	12%	3.96***
Direct effect	0.030	88%	3.81***
Total effect	0.034	100%	4.27***
Panel B			
Proportion	Coefficient	Percent of effect	z
Indirect effect	0.001	24%	3.14***
Direct effect	0.002	76%	2.10**
Total effect	0.003	100%	2.54**

WBP was standardized

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4 Moderating effects of risk preference and financial literacy on the relationship between women's bargaining power and household stock investment

	(1)	(2)	(3)	(4)
	Probit	Tobit	Probit	Tobit
	Stock	Proportion	Stock	Proportion
WBP	0.027*** (0.006)	0.043*** (0.014)	0.028*** (0.006)	0.029* (0.015)
Female gender	0.009 (0.007)	0.010 (0.016)	0.011 (0.008)	0.001 (0.018)
Risk	0.032*** (0.004)	0.062*** (0.010)	0.029*** (0.003)	0.059*** (0.007)
FL	0.043*** (0.004)	0.075*** (0.009)	0.046*** (0.005)	0.072*** (0.012)
WBP*Female gender	-0.013 (0.009)	-0.034* (0.019)	-0.016* (0.009)	-0.025 (0.020)
WBP*Risk	-0.007* (0.004)	-0.012 (0.010)		
Risk*Gender	-0.008 (0.006)	-0.013 (0.012)		
WBP*Risk*Female gender	0.014* (0.007)	0.036** (0.015)		
WBP*FL			-0.009 (0.006)	0.007 (0.014)
FL*Female gender			-0.010 (0.007)	0.003 (0.015)
WBP*FL*Female gender			0.021** (0.009)	0.017 (0.020)
Controls	Yes	Yes	Yes	Yes
N	6183	6094	6183	6094
R ²	0.299	0.433	0.299	0.432

(1) Individual, household, regional level variables, FL, and Risk were all controlled, as in the basic model

(2) Standard errors in parentheses. (3) Estimated marginal effects are reported for the probit models. (4) The interaction terms were constructed after mean-centering the independent and moderating variables

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

and control over final decisions when they had higher bargaining power, their attitudes towards financial portfolios may have been swayed by the persuasion of their husbands. We also found that the coefficients of the FR's gender were

insignificant, suggesting that there was no gender difference in household stock investments given the other effects.

The interaction effects of women's bargaining power, financial literacy, and gender of the FR are shown in Columns 3 and 4. The coefficient of the 2-way interaction of women's bargaining power and financial literacy was insignificant, while the coefficient of the 3-way interaction of gender, bargaining power, and financial literacy was significant and positive ($p < .05$) in Column 3. This suggests that the likelihood of household stock market investments increased with the women's bargaining power when women had a higher level of financial literacy. However, this moderation effect of women's financial literacy was not significant in the proportion of stock investments in Column 4. Hypothesis 3 was partly supported.

We found that the positive relationship between women's bargaining power and the likelihood of households to invest in stocks was intensified with the wife's higher risk preference and financial literacy. As for the proportion of financial assets invested in stocks, the positive role of women's bargaining power was enhanced only when they preferred risk more.

Heterogeneity Analysis

Households with different levels of income and net worth may have different inclination to participate in risky asset

Table 5 Effects of women's bargaining power on household stock investment for groups with low and high income and wealth

	(1)	(2)	(3)	(4)
	Probit	Tobit	Probit	Tobit
	Stock	Proportion	Stock	Proportion
WBP	0.019*** (0.007)	0.031** (0.014)	0.030*** (0.007)	0.058*** (0.016)
Income	0.016*** (0.006)	0.008 (0.008)	0.017*** (0.004)	0.011 (0.007)
Wealth	0.014* (0.008)	0.075*** (0.009)	0.009 (0.007)	0.077*** (0.011)
WBP*Income_H	-0.000 (0.008)	-0.007 (0.017)		
Income_H	0.006 (0.010)	0.012 (0.022)		
WBP*Wealth_H			-0.018** (0.009)	-0.042** (0.018)
Wealth_H			0.038*** (0.013)	-0.000 (0.026)
Controls	Yes	Yes	Yes	Yes
N	6182	6093	6181	6092
R ²	0.297	0.430	0.302	0.432

(1) Individual, household, and regional level control variables, FL, and Risk were all controlled, as in the baseline model. (2) Standard errors in parentheses. (3) Estimated marginal effects are reported for the probit models

(4) The interaction terms were constructed after mean-centering the independent variable

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

investments. For example, the public equity participation of households is positive relative to their wealth (Campbell, 2006). Households with higher disposable income may be more likely to invest on the stock market because they may have higher risk tolerance (Zheng, 2024) and the fixed investment costs to participate on risky asset markets may be smaller for these households (Calvet et al., 2007). In other words, the effect of women's bargaining power on household stock investment may be influenced by the level of household total income and net worth. We defined two binary variables as Income_H and Wealth_H, equal to 1 if the household's income(wealth) was above the median and 0 otherwise and added these variables to the equation. The results are shown in Table 5.

Columns 1 and 2 of Table 5 show that the coefficient of women's bargaining power was significant and positive while the coefficient of the interaction item was insignificant, indicating that women's bargaining power had strong positive impact on household stock investment regardless of the household income. In addition, the coefficients of the interaction items were negative and significant in Columns 3 ($p < .05$) and 4 ($p < .05$), suggesting that the effect of women's bargaining power was stronger for households with lower level of wealth. The reason for the differential effect of women's bargaining power in Columns 3 and 4 may be that the risky-asset investments of wealthier households were more aggressive due to lower investment costs (Calvet et al., 2007). In addition, due to larger cost of investment mistakes, the wealthier households may be less influenced by traditional gender norms in the division of major decision tasks (Guiso & Zaccaria, 2023). However, in less wealthy households, higher bargaining power of women, may effectively reduce the constraints of traditional gender norms on women's participation in decision making, and thereby exert greater marginal influence on stock investment decisions.

Alternatively, both analyses of heterogeneity for income and wealth were conducted with regressions in separated samples with below-median and above-median income (wealth) households. The difference in coefficients of bargaining power were similar as the coefficients of the interaction terms in Table 5.

We also investigated heterogeneity in the effect of women's bargaining power on household stock investment based on the age of the wife. The results are shown in Table 6. The positive and significant coefficients of the interaction terms indicate that the effect of women's bargaining power on household stock investment was intensified with increasing age of the wife. Furthermore, the positive interaction effect was stronger when the dependent variable was stock asset proportion. Younger wives may spend more time and effort on bearing and nurturing children, which may crowd

out women's participation in household financial decisions. Women of higher age may devote more effort to household financial investment planning and management. So, they may accumulate more knowledge, experience, and skills in financial management with increasing age, and thereby have greater influence on stock investment decisions. This is consistent with Zhou and Xiao (2018), who use data from the China Household Finance Survey (CHFS), showing that Chinese women are more involved in financial management and decisions as they age. We also conducted heterogeneity analysis for the wife's age in separated samples with below-median and above-median wife's age. The differences in coefficients of bargaining power between the samples were similar as the coefficients of the interaction terms in Table 6.

Robustness Check

Endogeneity

Some endogeneity issues including omitted variables and errors of measurement in the analysis may exist. For example, traditional gender norms within the household may affect household stock investment. Women's bargaining power may related to gender norms. However, due to the limitation of data, we did not find a suitable proxy for the gender norms of the household. Hence, the results of estimates may be biased due to endogeneity. To address this issue, we added the average education of women within the same county (*Edu_A*) as the instrumental variable for women's bargaining power and used IV Probit and IV Tobit models to conduct two-stage regressions. The average education level of women in the same county may be positively related to the status of women in the same areas due to similar gender norms. Besides, the stock investments of a household are not influenced by the education of other people. The results are shown in Table 7. The results show that women's bargaining power was successfully instrumented, passing the Wald test ($p < .01$). The *F*-values of first-stage regression in both in IV Probit (134.24) and IV Tobit (131.38) models were larger than 10, showing that the instrumental variable *Edu_A* was strongly related to WBP. Finally, the coefficient of women's bargaining power on household stock investment in the second stage was positive and significant ($p < .01$), which is consistent with the results in Tables 2 and 3, affirming the robustness of the findings.

Changing the Measurement of Women's Bargaining Power

To check the robustness of our findings, we measured women's bargaining power by constructing a variable WBP2 (see Sect. "Measures"). When women had higher education, better occupation than their husband, or the household

Table 6 The interaction effect of women's bargaining power and the age of the wives on household stock market participation

	(1)	(2)
	Probit	Tobit
	Stock	Proportion
WBP	0.018*** (0.005)	0.023** (0.010)
Age_w	0.003*** (0.000)	0.005*** (0.001)
WBP*Age_w	0.001** (0.000)	0.002*** (0.001)
Controls	Yes	Yes
<i>N</i>	6183	6094
<i>R</i> ²	0.298	0.430

(1) Individual, household, regional level control variables, FL, and Risk were all controlled, and age of the wife were controlled rather than that of the FR. (2) Standard errors in parentheses. (3) The variable Age_w denotes the age of the wife. (4) Estimated marginal effects are reported for the probit models. (5) The interaction terms were constructed after mean-centering the independent and moderating variables

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7 Two-stage least squares instrumental variable regressions

	(1)	(2)	(3)	(4)
	IV Probit		IV Tobit	
	First stage	Second stage	First stage	Second stage
	WBP	Stock	WBP	Proportion
Edu_A	0.349*** (0.017)		0.345*** (0.017)	
WBP		0.924*** (0.160)		0.141*** (0.042)
Controls	Yes	Yes	Yes	Yes
F value of first stage	134.24		131.38	
Wald test		33.30***		11.15***
<i>N</i>	6094	6183	6094	6094

(1) Individual, household, regional level control variables, FL, and Risk were all controlled. (2) Standard errors in parentheses. (3) The dependent variable in IV Probit model was Stock, and the dependent variable in IV Tobit model was Proportion

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

head was the wife rather than the husband, wives may have had greater bargaining power within the household. Hence, we reconsidered women's bargaining power by including three dimensions of the wife's relative status within the household. Specifically, the variable of WBP2 equaled 1 if women had either higher education, better occupation, or were the household head. When women had both higher education and better occupation, and were household head at the same time, the WBP2 equaled 3. The value of the WBP2 equaled the number of dimensions in which women were more dominant in these three areas. The results in Table 8 show similar findings as Tables 2 and 3. Women's

bargaining power had robust and significant positive impact on household stock investments.

Discussion

Using data from a representative sample of Chinese households, this study investigated the relationship between women's bargaining power and household stock investment. We find that women's bargaining power has a strong positive impact on household stock investments. Although women generally prefer more conservative investment portfolios, this study shows that women may be more attentive to financial information when they have more bargaining power. They also enhance their husbands' attention to financial information through the negotiation and bargaining process, and thus positively influence household stock investment. As far as we know, this is the first study to explore the mediating role of financial attention on the relationship between women's bargaining power and household stock investment. Furthermore, women's bargaining power is more significantly associated with household stock investment when they have a higher preference for risk and a higher level of financial literacy, although the effect of financial literacy is less than that of risk preference. Our findings are consistent with Yilmazer and Lich (2015), who show that the risk tolerance of the spouse who has more bargaining power has positive impact on household risky asset investments.

Yilmazer and Lyons (2010) find that married women who have greater control over household economic resources, measured by higher hourly wages and higher education levels than their husbands, prefer less-risky assets in their defined contribution plans. This study finds that households prefer investing more on the stock market when women have higher bargaining power. Women's attitudes toward risk may differ according to the investment context. Each spouse has his or her own investment strategies in defined contribution plans, while stock investments usually are joint

decisions of the spouses. The attitudes of wives towards joint decisions may be affected by the preferences of their husbands. Thus, women's choices may be more aggressive in investing on the stock market than in their own retirement investment plan. Our findings are also inconsistent with Jianakoplos and Bernasek (2008). Using data from the 2004 Survey of Consumer Finances, they find that household financial risky-asset investments are not significantly influenced by bargaining power of the partners. The reason for the difference may be that Chinese women's education levels and labor force participation have increased significantly over the past decade. China's rapid social and economic development has greatly enhanced the awareness of gender equality. Chinese women have made great progress in terms of both objective socioeconomic status and subjective gender equality awareness, which ultimately enables them to take more initiative and influence family venture capital decisions more.

The improvement of women's education is beneficial to household wealth accumulation and the development of financial markets. Besides, financial literacy is a critical asset for individuals and households to improve financial well-being (Lusardi & Messy, 2023), and it can be regarded as a kind of human capital investment (Lusardi & Mitchell, 2014). Financial education can help households to have a better understanding of the complex financial products and promote participation in the stock market. Governments and financial institutions may implement measures for investor education in schools, communities and workplaces. Furthermore, financial education may also intensify investors' ability to better understand financial information.

Despite a series of analyses we have conducted, there are limitations in this study. Household stock investments are collective decisions and involve both partners' participation. We should consider the preference of both partners in the analysis according to the collective bargaining model. However, due to data limitations, only the information about risk preference, financial literacy and financial information attention of the FR were available. Although we conducted the analysis by interacting the preference variable with the gender of FR, some relationships may still be missing. For example, how the relationship between bargaining power and household stock investment is related to differences in the spouses' personal characteristics and attitudes is not known, because we could not estimate the interaction effect of women's bargaining power with the differences of preferences and knowledges between partners on household stock investments.

Table 8 Effects of women's bargaining power (WBP2) on household stock investment

	(1)	(2)
	Probit	Tobit
	Stock	Proportion
WBP2	0.026*** (0.009)	0.060** (0.024)
Controls	Yes	Yes
N	1216	1199
R ²	0.291	0.384

(1) Individual, household, regional level control variables, FL, and Risk were all controlled, and education level as well as occupation of husband were controlled rather than that of the FR. (2) Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix

Table 9.

Table 9 Variable measurements

	Variable	Name	Description
Dependent Variables	Household stock investment	Stock Proportion	Stock holding = 1, 0 otherwise = Stock value / Household financial assets
Independent Variables	Women's bargaining power	WBP WBP2	Education difference: wife's education order minus husband's From 0 to 3 scores: = 0 if (Household head is male) & (wife's occupation <= husband's) & (wife's education <= husband's education) = 3 if (Household head is female) & (wife's occupation > husband's) & (wife's education > husband's education) Other scores are similar, calculated based on the number of dimensions women have more dominant power in these three dimensions
Characteristics of financial respondent	Financial literacy	FL	Objective financial literacy, from 0 to 2 points scale, larger means better The scores are calculated based on the correct answers to three questions: Question1: "Suppose the bank's annual interest rate is 4%. If 100 RMB is deposited as a fixed deposit for one year, what will be the total principal and interest after one year?" (a). Less than 104 yuan (b). Exactly 104 yuan (c). More than 104 yuan (d). I cannot calculate Question2: "Suppose the bank's annual interest rate is 5% and the inflation rate is 8% per year. After depositing 100 RMB in the bank for one year, the quantity of goods you can buy will:" (a) Increase compared to a year ago (b) Remain the same as a year ago (c) Decrease compared to a year ago (d). I cannot calculate Question3: "about risk knowledge was only asked to respondents who chose (a)/(b)/(c)/(d) in the question about familiarity with stock, funds, and bonds:" Question of familiarity: "What is your overall familiarity with stocks, bonds, and investment funds?" (a) Very familiar (b) Moderately familiar (c) Neither familiar nor unfamiliar (d) Moderately unfamiliar (e) Very unfamiliar Question3: "Generally speaking, which type of fund do you consider riskier: equity-oriented funds or bond-oriented funds?" (a) Equity-oriented funds (b) Bond-oriented funds (c) Have never heard of equity-oriented funds (d) Have never heard of bond-oriented funds (e) Have never heard of either (f) Both are equally risky We coded responses to Question 3 as incorrect (0) if participants chose (e) in the Question of familiarity
	Risk preference	Risk	5-point score of ordered variable, larger means more risk preference The questions from CHFS to measure Risk: If you had a sum of money to invest, which investment project would you prefer? From not willing to take any risk (0) to High-risk and high-return (5)
	Attention to financial information	FinInform	From 1 to 5 points scale, larger means more attention to economic and financial information

Table 9 (continued)

	Variable	Name	Description
Control Variables	Education of husband	Edu_h	The education of the husband. From 0 to 6, larger means higher education stage
	Individuals' variables of financial respondent	Gender	Dummy, financial respondent is female = 1, 0 otherwise
		Age	The age of the FR, and Age_w denotes the age of the wife
		Health	From 1 to 5, larger means better health status
		Occup	1 = Unemployed 2 = Blue collar occupations, including self-employed people, farmers, fishermen, hunters, skilled and non-skilled workers such as craftsmen and loggers, service workers such as waiters, hairdressers, cooks, etc., as well as policemen, drivers, etc 3 = White collar occupations, included senior/junior professionals such as doctors, professors, teachers, etc., and administrators/executives such as government officials, village leaders, secretaries, etc
	Household variables	FinIndustry	Dummy, 1 = at least one spouse worked in financial industry, 0 otherwise
		Child	Number of children (≤ 16 years old)
		Other	= Family size minus 2 and minus the number of children
		Income	= $\log(\text{household total income} + 1)$
		Wealth	= $\log(\text{net worth} + 1)$ if net worth > 0 ; = $-\log(-\text{net worth} + 1)$ if net worth ≤ 0
Debt		= $\log(\text{debt value} + 1)$	
Regional variables	House	Self-owned house = 1, 0 otherwise	
	East	Dummy, living in east region of China	
	Middle	Living in middle region of China	
	West	Living in west region of China	

Data availability The data used in this study is from the China Household Financial Survey Project (CHFS) organized and managed by China Household Financial Survey and Research Center, Southwestern University of Finance and Economics. <https://chfs.swufe.edu.cn/>

Declarations

Conflict of interest The authors have no financial or non-financial interests related to the work.

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