Influence of Factors in Social Environment on Stock Market Participation

Zeyi Bai[1, †], Yiqi Fan[2, †], Wanwen Wu[3, †], Hongziyue Zhang[4, *, †]

[1]*Birmingham Business School, University of Birmingham, Birmingham, B1 1GB, United Kingdom; ZXB009@student.bham.ac.uk*
[2]*Antai College of Economic and Management, Shanghai Jiao Tong University, Shanghai, 200030, China; fanyiqi0818@sjtu.edu.cn*
[3]*Imperial College Business school, Imperial College London, London SW7 2AZ, United Kingdom； ww2121@ic.ac.uk*
[4]*Department of Statistical Science, University College London, London WC1E 6BT, United Kingdom;*
**Email:zcakhz2@ucl.ac.uk*
[†]*These authors contributed equally.*

ABSTRACT
Stock market participation has long been a hot topic of discussion and many studies have focused on analyzing the effects of different factors on stock market participation. Most of these studies have focused on the effects of three areas: education, intrahousehold, and religion. Therefore, this paper will mainly focus on these three areas, conduct a literature review, summarize the previous views and present future perspectives.

Keywords: *Stock Market Participation, Education, Intrahousehold, Religion*

1. INTRODUCTION

Financial markets are an important part of the economy and have long been a focus of attention. Among them, households and individuals are the most fundamental decision makers in the financial markets. Their investment and saving decisions will have a significant impact on the financial markets, and their investments will be made in the form of direct or indirect investments in the financial markets. As an important part of the financial market, the stock market has received a lot of attention, and has been the main subject that people talk about. As financial markets cannot function efficiently without people's participation, many experts and scholars have tried to study the factors affecting stock market participation. Policy makers also hope that by studying the influence of factors in social environment on stock market participation, they can better formulate relevant policies to make financial markets healthier and more active.

Currently, there are many articles that attempt to examine the factors influencing stock market participation, and these articles address a variety of factors that covers variety of fields. However, most of the studies can be summarized into three main areas, which are education, intrahousehold, and religion. Many scholars have done various studies on the impact of these three aspects on stock market participation and have achieved remarkable research results. Considering that there are extensive discussions and collisions of ideas in academia about the impact of these three aspects, this paper will sort out the current academic views on the impact of these three factors on stock market participation. The significance is to summarize the previous research results and at the same time to provide some guidance for the future research direction.

2. EDUCATION

There is plenty of literature showing that education has a significant impact on the financial market participation. Most of the articles indicate that education will affect people making decisions in the financial market or whether or not participating into the stock market in three aspects, which are the degree of education that people have, college curricula that school sets and people's cognitive abilities respectively.

2.1. Level of Education and Stock Market Participation

First of all, the higher level of education that people take could lead to their higher interest in participating in the financial market. As Joensen, Christiansen, and Rangvid [1] stated that if the investors had longer time spending on education, they would have more probability to participate in the stock market compared to those who had shorter time. In order to prove this statement, Niels and Olivier [2] constructed a model by using the data from the central banks in all European regions including 11 countries, such as Greece, Germany and so forth. It would be better if they could use the data from the same period in order to make the analysis more accurate. They themselves also realized that using data from different periods could be the most serious problem in their research. From their model, they listed two types of education, which were medium education and high education. It was obvious that both types of education were positively related to the people's interest in participating in the stock market. However, some countries did not show that education was a significant factor that would influence the financial market participation because of some other more important factors, such as laws, cultures and so on. Despite this, people with higher education seemed to have greater probability to investigate compared to those with medium education. Similarly, Shawn Cole and Gauri Kartini Shastry [3] also agreed with this view. They used the U.S. census as their dataset to explore whether the degree of education had an impact on the financial market participation or not. The U.S. census was able to show the household income from each family, which would infer meticulously on how much money each family would gain from their investment. Just as Shawn and Gauri [3] found, "Individuals with one more year of schooling are 7.6% more likely to report positive investment income", which implies that those households with higher education were more willing to involve in the stock market. Thus, it can be found that all these literatures supported a similar conclusion that higher education level will lead people to participate more in the financial market.

2.2. Financial Literacy

Secondly, the financial literacy that the investors have can also be considered as a factor related to the financial market participation since the higher education people receive, the more financial knowledge they will comprehend. It is undeniable that the financial knowledge that people have is directly proportional to whether they can plan ahead [4]. In their article, Annamaria and Olivia suggested that the household income could be apparently affected by financial literacy since the wealth of retirement life was strongly linked to planning with other factors constant. Furthermore, Sreeram Sivaramakrishnan, Mala Srivastava and Anupam Rastogi [5] used Advanced Financial Literacy (AFL) to predict people's intention to investigate and they concluded that the relationship between education level and AFL should be built by providing relevant financial courses on campus. It can be inferred that if schools did not offer financial literacy related courses to the students, the link between education level and financial market participation would be weakened to some extent. Conversely, Shawn Cole and Gauri Kartini Shastry [3] believed that those financial literacy programs founded by schools seldom had impact on investors' saving and investment behavior. After their experiment, they found that students who took financial literacy showed similar financial market participation rates as those who did not. Facing the differences between their research and others', they explained that it was because the control groups and the comparison groups would generally change according to the variables, which would cause the conflict between research results. Despite this, the financial literacy could still be recognized as one of the factors that would influence financial market participation and the more financial literacy people comprehended, the more willingness they would participate in the stock market.

2.3. Cognitive ability

Last but not the least, the cognitive ability would influence people's desire to participate in the financial market as well and this view is supported by many documents. Shawn Cole and Gauri Kartini Shastry [3] considered that education was able to change individual's cognitive ability and those with stronger cognitive ability could be able to make their choices more sensible and broader, and thus participate more in the financial market [6]. As a result, it is proved that individuals with stronger cognitive ability would show more interest in taking part in the financial market [7]. In their article, they compared different people's SAT scores and realized that those with higher SAT scores would usually perform more outstanding in the company than the people with less education level, as well as less cognitive abilities. Similarly, Shawn Cole and Gauri Kartini Shastry [3] suggested that people with higher test scores would show more distinguished cognitive ability and are naturally more willing to enter the financial market for investment and other financial activities.

In addition to education, age is also considered as a critical factor that will influence cognitive ability. Sumit, John, Xavier and David [8] found there was a "U-shaped" patterned mistake in their age-related experiment. In the experiment, they noticed that there was a "age-based decline in the analytic function", which indicates that as people got older, their cognitive abilities would also become weaker, and hence made some conspicuously different financial decisions compared to those made by

younger people. In order to make their point of view more convincible, they revealed that "analytic function falls by 2 to 3 percent of one standard deviation with every incremental year of age after age 20" [8] and consequently implies that age is one of the driven factors of cognitive ability.

3. INTRAHOUSEHOLD ANALYSIS

Stock and mutual fund investments, as well as shares of household assets invested in stocks or mutual funds, are strongly associated with household happiness. Moreover, the relation between happiness and stockholding is mediated by trust (or social capital), rather than households' risk preferences or optimism levels.

3.1. Happiness Factor

Happiness is demonstrated as one of the determinants for most households to decide whether to invest in the stock market or not [9] [10]. The stock market participation rates of happier households would be higher than those of less happy households. Cui and Cho [9] point out that the relationship between happiness and the tendency to participate in the stock market shows "a reversed U-shape". That is to say, the probability of participation would increase with the growth of self-reported happiness, while it declines at the peak of self-reported happiness. Besides, risk tolerance is considered to drive the causal effect between happiness and stock-market participation [9]. Positive emotions may affect one's attitude toward risk and therefore his/her economic decisions. Specifically, it is concluded to have a categorical effect on two groups of people. For unhappy individuals, the positive emotion reduces a persons' risk aversion and increases the likelihood of risky financial market participation, while the very happy individuals present a defended attitude towards investing in the stock market. It is likely that they would prefer to maintain and protect the status quo. However, Rao and Mei [10] argue that it is the trust and social capital that drives the positive relation between happiness and participation. They conducted research on three driver channels and confirmed the role of risk aversion as one of the important determinants of stock market participation. But, the rate of participation is not probably influenced by happiness through risk tolerance. Instead, trust (or social capital) is observed as the significant channel [10]. Additionally, Li and Bricker [11] state that counties with high social capital would help develop social trust of people. Credit scores were used to reflect the social capital level and level of social trust. Their conclusion supported the important role of trust the same as Rao and Mei [10] did. Furthermore, it is found that social capital levels of the county where one grows up appear to have a lasting influence on future stock participation [11]. Thus, one who grew up in a high social capital county, even if he/she moved to another place, is likely to participate in the stock market.

3.2. Offspring Factor

Gender has been considered as the key element affecting one's investment behaviors by much literature. In terms of households, family wealth conditions directly have an impact on offspring education attainment, wealth transfer, and taking risks in the stock market is argued to be linked with offspring gender [12]. He suggests that married respondents with only female children are more likely to penetrate in the stock market and having only male children increases the probability that single females start having their own stocks. In contrast, Niu, Wang, Li and Zhou [13] observe that the number of brothers under one roof seems be positive related with the stock participation, especially for those who exposed in high life risk and great gender discrimination. The role of the number of brothers in holding the stock appears not to be ignored in developing countries provided it could share the family risks. The reason why Bogan [12] and Niu, Wang, Li and Zhou [13] find contrary arguments might lie in the economical environment the subjects live in. Bogan [12] started his research in the developed country (United States), whereas Niu, Wang, Li and Zhou [13] focused on the subjects in developing countries (China). Therefore, both conclusions could have further impact in diverse economic contexts.

3.3. Bargaining Power Factor

Household is one of the most important research subjects. Thus, it is beneficial to investigate the factors which could affect decision making in a household. A clear financial decision is the outcome of the fighting of two partners depending on their bargaining power. The level of income, education level and the position in relative financial firms are three possible factors depicting the level of bargaining in a family [14]. They assert that the spouse who has a higher income appears to have the final decision. Whereas, occupation in financial fields and having high-quality education are probably to support ones to rationally distribute the family financial resources. Pollak [15] supports the significant role that income plays in intrahousehold decision making. Furthermore, the potential income is argued to have more impact upon bargaining power than actual income. To address the endogeneity of independent variables that affect income, the author instruments the divorce measure by the part attributable to aggregate age. Zhou and Xiao [14] finds that the bargaining power would also be affected by time preference, which means, over time, women would hold more proportion of decision-making power. Consistent with the findings made by Zhou and Xiao [14], the female spouse with increasing bargaining power tends to decline the probability of participating in the stock market.

4. RELIGION

There are a large amount of literature on how religion affects the financial market participation. Religious people are considered to have more incentive to participate in the stock market for three reasons: high social engagement, high level of trust and religious culture.

4.1 Religion and Social Engagement

Religious households could bring a higher degree of social interaction, which leads to higher participation in the risky market which is defined as stock market in this article. Because of the characteristics of religious organizations, it is easy for their believers to build up an intra-religious social network and social circle [16]. Faiths make people more likely to trust each other when they interact in communication, affecting people' participation in the stock market. A wide range of information asymmetry exists on the financial markets today, and social networks and acquaintances contribute significantly to stock market participation [17]. By attending religious activities and increasing social engagement, people could get to know more opportunities about investment choices, which is supported by Hong, Kubik and Stein(2004) [18]who use church attendance as a measurement proxy for social interaction and find it to be positively related with stock market participation. Gaining information is one of the benefits of religious social interaction, which leads to higher financial market participation rate.

According to the recent study model of Georgarakos and Pasini [19], trust and sociability measures both have independent impact on stock market participation. Also, they claim that sociability can compensate for low trust levels. To investigate more about the relationship between trust and investment decisions, we now move away from the religious social engagement effect to trust on households, next discussing the role of trust.

4.2 Religion and Trust

Second, Religious faith and higher level of social interaction also influences people's trust in the individuals, society, and even the financial institution, resulting in higher share ownership.

Trust in the whole financial system is one of the most significant requirements for individuals to participate in the market, including trust in the investing processes and staff members involved. Guiso et.al.[20] found that there is a positive relationship between the stock ownership and the trust exhibited by the citizens, by using the evidence in Italy. The method they use is based on the probability individuals believe they will be cheated in the stock market. The ratio of risky assets people hold, the average rate of market participation and the percentage of wealth people invest in are also affected by trust [21]. However, the method Guiso used in 2004 is using "trust" to measure social capital, which is disputable because the causal effect between them is unclear with influence of other confounding factors like religiosity or sociability.

Renneboog and Spaenjers [22] find a positive relationship between religiosity and trust regarding household investment decisions. Similarly, Johansson-Stenman et al. [23] state that religious faith helps to build the social trust among all participants easier than other social activities, providing evidence in rural bangladesh. Li [24] and Guiso(2008) [20]finds that higher the probability of residents' participation in the financial market will be viewed when their trust is higher through religious activities. According to Guiso et al. (2003)[25], attending religious services regularly has a positive impact on trust towards others. Furthermore, religion increase believer's trust on the whole society and enhance market participation as religious institution provide social security and supports through donation to ensure the stability of householder's income in an economic shock [26].

4.3 Religion Culture and Belief

Finally, investment decisions are affected by religious culture. It is a common feature of religious doctrines that thrift, or being cautious with money, is important [22]. This may significantly influence religious people 's risk preference. Besides the thrift, religiosity also puts emphasis on personal responsibility, which enables religious people to prefer to invest in the long-term outperformance of stocks compared to other asset classes [25]. Furthermore, In the research of Renneboog and Spaenjers [22], families with strong religious traditions are more likely to leave bequests and have a longer-term planning horizon, resulting in increased stock market participation. Different religious faiths hold different attitudes toward participation in financial markets and risk preference. Different religions have different doctrines regarding wealth definition and life value, which leads to various household financial decisions. In China, In Yang, Y. et al.'s [26] research, Buddhism and Taoism are more likely to participate in the financial market than Islamic and Christian households, with significant statistics level. In Germany survey data made by León and Pfeifer [27], they discover that Christians are more likely to take financial risks and participate in risky stock markets than non-religious individuals. Same as the finding of Halek and Eisenhauer [28] in America that Catholics and Jews are more into speculative risk but not pure risk. By contrast, the opposite result given by the research in Dutch, made by Noussair et al. [29], which reports that more religious people are more risk averse. However, this conclusion may be driven more by other social aspects of church membership rather than by the religious beliefs themselves. There are many other

influences other than holding the religious belief that causes the inconsistency in finding across countries, including different social capital, personal income or trust in a country [30]. In conclusion, most of research state that Individuals who have religious beliefs significantly increase their probability of participating in the stock market.

Moreover, religious culture and doctrine affect religious people's human capital, especially education level [26]. There is evidence in China from 1840 to 1920 that the spread of religion enhance the accumulation of human capital, which boost the economic growth [31]. Education is one part of human capital. Like the discussion above in the first section, participation in the financial market is significantly influenced by residents' cognitive ability and educational level. Human capital means information exchange and a higher level of cognition ability. Yin et al. [26] illustrated that human capital accumulation is affecting household financial decisions. The accumulation of human capital in religious activity affects people's cognition and indirectly affects whether households participate in financial markets [32].

These findings underscore the links between religion and trust, sociability, beliefs, resulting in various financial market participation. It is important to do further religion research in the future because the influence of religion in households is likely to grow under the circumstance of globalization, resulting in religious upsurges in many countries. Financial institutions and banks should consider religion effects during introducing new financial products based on their risk preference and religious belief.

5. CONCLUSION

The above summarizes the research in each of the three main areas of education, intrahousehold and religion. With respect to education, there is ample literature supporting the impact of education on stock market participation in three main ways. First, with respect to education level, most of the literature supports that higher education levels lead to higher stock market participation. Experiments conducted by different scholars in different countries at different time periods have reached similar conclusions. Second, with respect to financial literacy, although the results of one experiment suggests that financial literacy courses created in schools rarely have an impact on investors' saving and investment behavior, the mainstream view continues to consider financial literacy as one of the factors that influence financial market participation. The more people understand financial literacy, the more they are willing to participate in the stock market. Finally cognitive ability also affects people's desire to participate in financial markets, and different studies have come to the consistent conclusion that individuals with stronger cognitive ability show greater interest in participating in financial markets. It is further suggested that there is a relationship between age and cognitive ability, thus making it possible that age also has an impact on stock market participation.

Many factors also influence stock market participation in terms of intra-household analysis. First, happiness has been shown to be one of the determinants of most households' decision to invest in the stock market, with the relationship between happiness and propensity to participate in the stock market showing "an reverse U-shape". A portion of scholars argue that risk tolerance drives the causal effect between happiness and stock market participation, but the mainstream view is more likely to recognize that trust and social capital drive the positive relationship between happiness and participation. Second, offspring factors also have an impact on stock market participation. Studies across countries reach similar conclusions that both the gender and the number of children influence households' stock market participation. Finally, spouses with higher incomes in the household appear to have the final say in investment decisions, where potential income is thought to have a greater impact on bargaining power than actual income.

Religion is believed to enhance stock market participation, mainly through social engagement and trust. First, the dominant view is that social engagement would be increase in religious events, which in turn leads to higher stock market participation. Second, religion will lead to higher levels of social trust, and studies in various countries have found that high levels of trust from religion will lead to high stock market participation. Finally, based on studies of different religions, it is found that different religious beliefs hold different attitudes toward financial market participation and risk preferences, leading to different household financial decisions. Also, religious beliefs will bring higher human capital, resulting to higher risky market participation. However, most studies continue to conclude that individuals with religious beliefs significantly increase their probability of participating in the stock market.

Overall, all three aspects - education, intra-household factors, and religion - have significant effects on stock market participation. The current literature has detailed these three aspects, while some of the subdivisions are still controversial, the dominant view has been broadly developed. The effect of education on stock market participation is more clear and unambiguous. There is still some controversy and room for further research on the impact of intra-household factors. Intra-household factors are a large area and an important factor influencing stock market participation, so follow-up in-depth research is necessary. Policy makers can also consider the impact of intra-family factors and enact policies to regulate stock market participation. Religious factors also deserve more in-depth study. With increasing internationalization and the growing movement of people

of different religions, it is worthwhile to further analyze how the different investment decision characteristics brought by religion will affect investment behavior. Additionally, financial institutions can also consider the influence of religious factors when structuring relevant financial products to attract more investors.

REFERENCES

[1] J.S. Joensen, C. Christiansen, and J. Rangvid, *Are Economists More Likely to Hold Stocks*, 2007, 12 (3), pp. 465-496.

[2] N.Dillen, and O. D.Lille, *STOCK MARKET PARTICIPATION IN THE EUROPEAN UNION*, 2017, pp. 3—25.

[3] C. Shawn, and K.S. Gauri, . *Smart Money: The Effect of Education, Cognitive Ability, and Financial Literacy on Financial Market Participation.*, 2009, pp. 30–31.

[4] A.Lusardi, and O.Mitchell, Baby Boomer retirement security: The roles of planning, financial literacy, and housing wealth. *Journal of Monetary Economics*, 54(1), 2007, pp.205-224

[5] S.Sivaramakrishnan, M.Srivastava, and Rastogi, A., Attitudinal factors, financial literacy, and stock market participation. *International Journal of Bank Marketing*, 35(5), 2017, pp.818-841

[6] R. Matthew and W. Georg, Narrow Bracketing and Dominated Choices. *American Economic Review.* 2009, pp.1508–1543.

[7] J. Chevalier, and G. Ellison, Are Some Mutual Fund Managers Better Than Others? Cross-Sectional Patterns in Behavior and Performance. *The Journal of Finance*, 54(3), 1999, pp.875-899.

[8] S.Agarwal, J.Driscoll, X. Gabaix and D. Laibson, *The age of reason: financial decisions over the lifecycle*. Cambridge, Mass: NBER, 2007.

[9] W. Cui, I. Cho, Household's Happiness and Financial Market Participation. *Global Economic Review*, 48(4), 2019, pp. 396-418.

[10] Y. Rao, L. Mei, R. Zhu, Happiness and Stock-Market Participation: Empirical Evidence from China. *Journal of Happiness Studies*, 17(1), 2014, pp. 271-293.

[11] J. Bricker, G. Li, Credit Scores, Social Capital, and Stock Market Participation. *Finance and Economics Discussion Series*, 2017(008).

[12] V. Bogan, Household investment decisions and offspring gender: parental accounting. *Applied Economics*, 45(31), 2013, pp.4429-4442.

[13] G. Niu, Q. Wang, H. Li, Y. Zhou, Number of brothers, risk sharing, and stock market participation. *Journal of Banking & Finance*, 113, 2020, pp. 105757.

[14] J. Zhou, T. Xiao, Analyzing Determinants of Household Financial Decision-Making: Household Stock Investment in China. *Emerging Markets Finance and Trade*, 54(15), 2018, pp. 3385-3400.

[15] R.Pollak, *Bargaining Power in Marriage: Earnings, Wage Rates and Household Production*. Ideas.repec.org, 2021, DOI: https://ideas.repec.org/p/nbr/nberwo/11239.html.

[16] R. Dehejia, T. DeLeire, E.F. Luttmer, Insuring consumption and happiness through religious organizations. J. Public Econ. 91 (1–2), 2007, pp.259–279.

[17] C. Wang, , S.J. Chai, C.Z. Tian, , 2015. Family social network and stock market participation. World Econ. pp, 105–124.

[18] H. Hong, J.D. Kubik, J.C Stein, 2004. Social interaction and stock market participation. J. Financ. pp,59.

[19] D.Georgarakos and G. Pasini (2011) Trust, sociability, and stock market participation, Review of Finance pp,63.

[20] L. Guiso, P. Sapienza, L. Zingales, (2008). Journal of Finance. *Trusting the Stock Market.* 63(6), 2008, pp. 2557-2600.

[21] L. Guiso, P. Sapienza, L. Zingales, The American Economic Review 94, *The role of social capital in financial development*, 2004, pp. 526-556.

[22] L. Renneboog, and C. Spaenjers, Religion, economic attitudes, and household finance, Oxford Economic, Papers 64, 2012, pp.103-127.

[23] O. Johansson-Stenman, M. Mahmud, P. Martinsson, Trust and religion: experimental evidence from rural Bangladesh. Economica 76 (303), 2009, pp.462–485.

[24] T. Li, Social interaction, trust and stock market participation. Econ. Res. J. 1, 2006, pp.34–45.

[25] L. Guiso, P. Sapienza, L. Zingales, Journal of Monetary Economics 50, *People's opium? Religion and economic attitudes*, 2003, pp. 225-282.

[26] Y. Yang, C. Zhang, Does religious faith affect household financial market participation? Evidence from China, 2019, pp 42-50

[27] A.K. León, and C. Pfeifer, Religious Activity, Risk Taking Preferences, and Financial Behaviour: Empirical Evidence from German Survey Data,

University of Lüneburg Working Paper Series in Economics, No. 269, 2013.

[28] M. Halek and J.G. Eisenhauer, Demography of risk aversion, Journal of Risk and Insurance pp,68.,2001

[29] C. Noussair, S. Trautmann, G. Van de Kuilen, and N. Vellekoop, Risk Aversion and Religion, CentER Discussion Paper Series No. 2012-073, 2012.

[30] J. Gruber, Religious Market Structure, Religious Participation, and Outcomes: Is Religion Good for You? National Bureau of Economic Research, Cambridge, Massachusetts, Working Paper No. 11377, 2005.

[31] Y. Bai, J. Kung, Diffusing knowledge while spreading God's message: protestantism and economic prosperity in China, 1840–1920, *J. Eur. Econ. Assoc.*, 13 (4),2015, pp. 669-698

[32] C.Z. Yin, Q.Y. Song, Y. Wu, 2014. Financial literacy, trading experience and household portfolio choice. Econ. Res. J. 4, 62–75.