

What Determines How Often Retail Investors Trade? Evidence from Field Research in China

Fuxin Tian^{1,*}

¹ Department of Statistics and Applied Probability, University of California, Santa Barbara

*Corresponding author. Email: fuxintian@ucsb.edu

ABSTRACT

Retail investors' heavy transactions, which are connected with the "herd effect," have a detrimental influence on individual return rates and market volatility. It is well observed that Chinese investors have more frequent trading behavior than investors from western countries. This study aims to testify the key determinants of their trading frequency based on their personalities and evaluation of the market. In this context, social and biological features include factors such as age, gender, educational attainment, and total assets, whereas attitude refers to investors' assessment of and confidence in risky investments. Specifically, it investigates how retail investors' biological and sociological traits, as well as their attitude toward the investment market, influence their trading frequency. To test the hypothesis, an online survey and interviews were distributed to 177 retail investors by a Chinese scholar. This study uses correlation coefficient analysis to find the associated factors in his primary data: gender, stock investing period, and risk preference are the most important correlated variables. The research then analyzes the degree of correlation of each variable using the OLS regression model. The findings imply that males trade more frequently than women; the deeper an investor's investment in stock, the simpler it is for them to execute stock transactions; and the more risk they take in stock, the more frequent stock transactions are likely to occur among retail investors.

Keywords: Retail Investor Trade, OLS Regression Analysis, Control Variable, Transaction Risk and Frequency.

1. INTRODUCTION

By observing the behavior of retail investors in the Chinese stock market, they trade significantly more frequently than investors in European and American markets. According to the survey by State Street in 2015, eighty-one percent of retail investors from China trade at least once a month, significantly higher than 53 percent in the US and 32 percent in France.

In most cases, however, heavy trading operated by retail investors can only have a negative impact on investment. On the one hand, there is a negative correlation between trading frequency and investment return. A classic "80/20 rule" is famous in investment science, which states that 80% of an investor's return on an investment comes from only 20% of his investment time. One popular explanation is that frequent increases, decreases or changes in stocks mean higher commissions, and investors tend to rush to stop losses while blindly chasing gains. In the empirical study, we do find that

trading frequency has a negative impact on the return rate.

On the other hand, too frequent trading damages the steady operation of the entire stock market. For example, Hsieh et al. (2020) found that retail investors' attention to information on small-cap stocks was positively correlated with their "herd effect", thus exacerbating market volatility. Recent research by Baig et al. has shown that speculative trading by individual investors can negatively impact the stability of financial markets, especially during the COVID-19 pandemic (Baig et al., 2021).

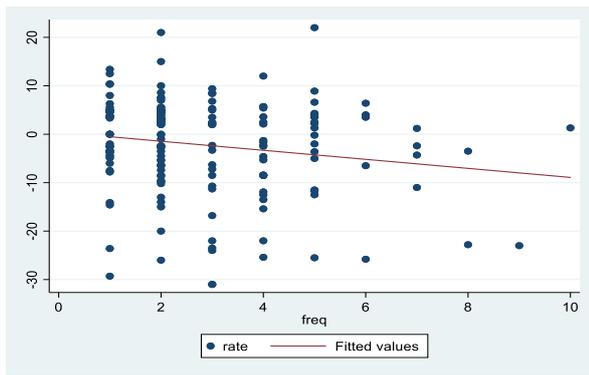


Figure 1 The negative relationship between trading frequency and return.

Taken together, even with the "T+1" arrangement, retail investors still contribute a staggering amount of trading volume in China. By studying the driving factors and structural characteristics of frequent trading by retail investors, we can help investors improve their investment behavior and thus improve the stability of financial market.

The question that we want to study is basically two aspects. One is whether the physiological characteristics and social characteristics of retail investors (including age, gender, education level, total household assets, etc.) have a significant impact on their frequently traded investment behavior. The second is whether the attitude of retail investors to the stock market (including risk preference and level of overconfidence) will determine the behavior of frequent trading. What is new is that we use data from a recent survey of Chinese investors and explore the impact of the level of risk aversion on the frequency of trades.

2. RELATED LITERATURE

Barber and Odean (2001) used stock investment data from 1991 to 1997 to find that men traded stocks 45% more frequently than women and attributed this to men's more severe overconfidence problem. Since then, scholars have been divided on the mechanism by which overconfidence leads to high trading frequency. Glaser et al. (2007) classified the overconfidence problem into three aspects: miscalibration, volatility estimates and better than average effect. Their results showed that the better than average effect is the main channel that affects the frequency of transactions, but the impact of miscalibration and volatility estimates on trading frequency is not significant. Graham et al. (2009) also holds the same view. However, Deaves et al. (2009) found that miscalibration and better than average both had a significant impact on transaction frequency by using a task-based calibration model.

In addition to the overconfidence problem, Barber and Odean (2001) found that age was an important factor influencing the frequency of trading, young people trade

more frequently. Through an empirical study, Graham et al. (2009) found that competence effect is an important factor affecting trading frequency. Investors with higher educational background and higher asset level tend to trade more frequently.

With the rapid development of behavioral economics in recent years, more and more scholars explore the differences in trading behaviors through preference differences. The dual decision-making model established by Fudenberg and Levine (2006) believes that there are two different decision-making systems in individuals, and the two decision-making systems are characterized by fast decision-making and thoughtful decision-making respectively. And in the competition between the two decision-making systems, the difference of individual risk aversion may ultimately affect the trading strategy. Falk et al. (2018) found that people who were more patient in their decision-making and traded less frequently were less averse to taking big risks under uncertain conditions.

At present, researches on the influencing factors of trading frequency mainly focus on overconfidence, but lack of researches on individual risk preference and other individual factors. This paper mainly makes up for these deficiencies by focusing on kinds of individual factors and using Chinese data for the first time.

3. MATH AND EQUATIONS

Our data of this study is from the questionnaire **primary data** by a Chinese scholar. This data set includes questionnaire survey and interview data of 177 retail investors, all of which are from the field research conducted by the scholar and his team on the stock exchanges in mainland China.

We first conducted correlation coefficient analysis on each variable, and the obtained results are shown in the following table. From the table, we can see that the variables that are significantly correlated with transaction frequency are gender, participation time in the stock market and risk preference. However, age, assets, overconfidence, educational background and other factors are not significantly correlated with transaction frequency.

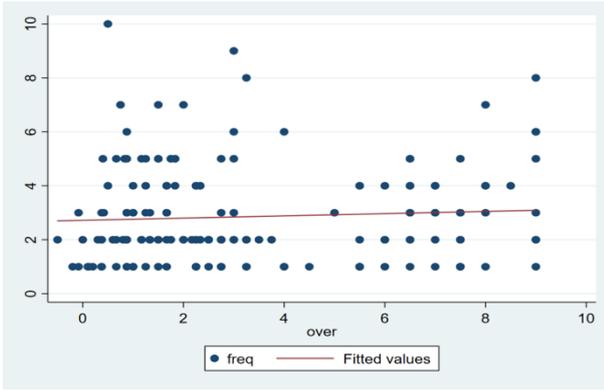


Figure 2 The relationship between educational background and transaction frequency.

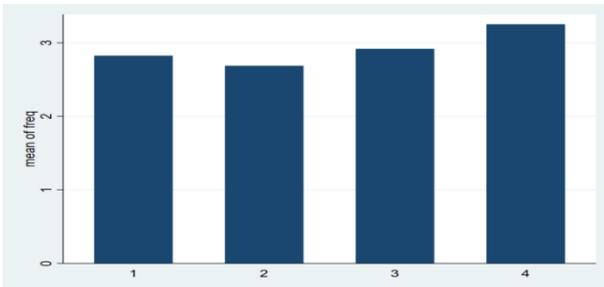


Figure 3 The relationship between overconfidence and transaction frequency.

The result was surprising: education and overconfidence had no significant effect on trading frequency. To further analyze the reasons, we made the relationship chart of educational background, overconfidence and transaction frequency as shown below.

As can be seen from the figure, the trading frequency declined when the education level was level 2, but generally speaking, the trading frequency increased with the improvement of education level. At the same time, Figure 2 also shows a weak positive correlation between overconfidence and transaction frequency, but it is not obvious. We suspect that the insignificance of such correlation may come from the cross-influence of other variables on the two, so more rigorous modeling analysis in the next section is needed to help us explore whether educational background and overconfidence have a significant impact on transaction frequency.

4. MEASUREMENT METHODS AND RESULTS

4.1. Methods

In order to obtain the causal effect between core variables, OLS regression analysis should be performed on the basis of certain identification assumptions.

First, we explore the impact of physiological and social characteristics of retail investors on their

investment behavior. Since gender and age are not affected by other potential variables, they can be directly included in the regression. As for social variables such as marital status, total family assets and the length of time invested in the stock market, we can assume that there are no other unobvious variables which affect both these explanatory variables and dependent variable-transaction frequency (i.e., there is no omission variable bias). Thus, OLS regression can be directly used to obtain consistent estimates of causality (**Model 1**):

$$freq_i = \alpha_0 + \alpha_1 male + \alpha_2 age + \beta_1 marriage + \beta_2 asset + \beta_3 time + \beta_4 edu + \epsilon_{1i}$$

Second, we focus on whether investors' preference for risk and their overconfidence have a significant impact on trading frequency. However, risk preference and overconfidence can also be influenced by the characteristics of individuals. For example, gender can often determine the degree of overconfidence of investors, and males are more likely to have the characteristics of overconfidence than females. Total household assets can be an important determinant of an investor's level of risk appetite: a risk-averse investor has a concave utility function, meaning that the level of risk aversion declines as wealth increases. Therefore, the individual characteristics of investors need to be put into the regression as control variables to obtain consistent estimates of risk aversion and overconfidence levels (**Model 2**):

$$freq_i = \alpha_0 + \gamma_1 risk + \gamma_2 over + \alpha_1 male + \alpha_2 age + \beta_1 marriage + \beta_2 asset + \beta_3 time + \beta_4 edu + \epsilon_{2i}$$

4.2. Results

The two regression results are presented in Table 1. First, gender is indeed one of the important factors influencing how often retail investors trade, which is consistent with the empirical findings by ABarber and Odean (2001). The male coefficient is 0.577 and is significant at the 5% level. This means that, on average, men trade 0.577 units more often than women. Secondly, the duration of investment in the stock market also affects the frequency of trading. Our empirical research finds that the longer an investor has been in the stock market, the easier it is to buy and sell stocks, or adjust their positions, more frequently. This phenomenon is very interesting, even though investors have more experience, it is still difficult to overcome the negative effects of psychological biases such as blindly following the crowd and chasing the rise and falling. As for other variables, including age, education level, total household assets, etc., the effect on transaction frequency is not statistically significant, although they may have some economic significance.

On the other hand, individual's attitude towards risk has a significant impact on trading frequency at the level

of 10%. That is, the higher the degree of risk tolerance of retail investors, the more prone to excessive trading behavior. Perhaps it has to do with the psychology of investors: if they can tolerate a higher degree of risk, frequent positioning can satisfy their psychological expectations for higher yields, even if the results are often disappointing. In addition, the influence of overconfidence on transaction frequency is not significant, which means that age, gender and other characteristics do not affect transaction frequency through overconfidence, which is contrary to previous literature studies. The reason may be that the investment habits of investors in China are different from those in Europe and the United States, or there are observational errors in the field survey data, which need to be further studied.

5. CONCLUSION

This paper is an attempt to understand the motivation behind investors' frequent stock transaction and the way they come up with different investing strategies. Existing literature has focused on the individuals' psychological explanations behind frequent trading, including the correlation between such behavior and overconfidence, but few have systematically explored the determinants of

high trading frequency among retail investors. Based on the data obtained from the field survey conducted by Chinese scholars mentioned above, this research not only explores the influence of personal characteristics on trading frequency, but also explores whether individual risk preference will determine the behavior of excessive trading. This research is of great value because it unveils intangible variables that impact investors' stock decisions that people usually ignore. We found that male investors trade more often than female investors; retail investors with more experience trade more frequently. In addition, individuals with higher risk tolerance are more likely to exhibit behavioral characteristics of high trading frequency. Overconfidence and education are not significant determinants that affect the frequency of trading. In the stock market, retail investors in China trade significantly more frequently, including changing positions and varieties, than in other countries and regions. However, trading too frequently not only does not increase the return on investment, but also increases the volatility of the market. Government and related agencies shall act to either limit or encourage investors' trading action based on their own characteristics. However, due to the small sample size, the conclusions of this paper still need to be further verified..

Table 1. Variable description

Variable	Symbol	Variable meaning
Frequency	freq	Trading frequency intensity ranges from 1 to 10
Gender	male	0 stands for female, 1stands for male
Age	age	Age continuous variable
Marital status	marriage	0 stands for unmarried, 1 stands for married
Assets	asset	Continuous variable of asset size, ten thousands RMB for one unit
Education level	edu	Education levels range from 1-4, 4 means master degree or above
Stock investment time	time	Participation time in the stock market in years
Risk preference	risk	Higher value means stronger risk tolerance
Overconfidence	over	The difference between subjective and objective financial literacy

Table 2. Correlation coefficient between variables

Variables	(freq)	(male)	(age)	(marriage)	(asset)	(edu)	(time)	(risk)	(over)
freq	1.000								
male	0.153**	1.000							
age	0.078	0.004	1.000						
marriage	0.096	-0.112	0.602***	1.000					
asset	0.014	0.018	0.120	0.087	1.000				
edu	0.078	0.027	-0.386***	-0.220***	-0.144*	1.000			

time	0.167**	-0.031	0.429***	0.350***	0.057	-0.122*	1.000		
risk	0.143*	-0.021	-0.130*	0.106	0.062	-0.039	0.043	1.000	
over	0.063	0.099	-0.103	-0.020	-0.029	-0.018	-0.082	0.019	1.000

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 3. Results from regressions

	Model 1	Model 2
	freq	freq
risk		0.075* (1.92)
over		0.044 (0.89)
male	0.577** (2.15)	0.558** (2.04)
age	0.001 (0.10)	0.010 (0.67)
marriage	0.335 (0.87)	0.137 (0.34)
asset	0.000 (0.17)	0.000 (0.04)
time	0.188** (1.98)	0.168* (1.73)
edu	0.219 (1.44)	0.254 (1.65)
Constant	1.092 (1.52)	-0.256 (-0.26)
Observations	177	173
F-test	0.0492**	0.0385**

1. t-statistics in parentheses.

2. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

3. F-test is shown as p value.

REFERENCES

- [1] Barber, B. M., & Odean, T. (2001). Boys will be boys: Gender, overconfidence, and common stock investment. *The quarterly journal of economics*, 116(1), 261-292.
- [2] Deaves, R., Lüders, E., & Luo, G. Y. (2009). An experimental test of the impact of overconfidence and gender on trading activity. *Review of finance*, 13(3), 555-575.
- [3] Glaser, M., & Weber, M. (2007). Overconfidence and trading volume. *The Geneva Risk and Insurance Review*, 32(1), 1-36.
- [4] Graham, J. R., Harvey, C. R., & Huang, H. (2009). Investor competence, trading frequency, and home bias. *Management Science*, 55(7), 1094-1106.
- [5] Fudenberg, D., & Levine, D. K. (2006). A dual-self model of impulse control. *American economic review*, 96(5), 1449-1476.
- [6] Falk, A., Becker, A., Dohmen, T., Enke, B., Huffman, D., & Sunde, U. (2018). Global evidence

on economic preferences. *The Quarterly Journal of Economics*, 133(4), 1645-1692.

- [7] Baig, A., Blau, B.M., Butt, H.A., & Yasin, A. (2021). Do Retail Traders Destabilize Financial Markets? An Investigation Surrounding the COVID-19 Pandemic. *International Finance eJournal*.
- [8] Shu-Fan Hsieh, Chia-Ying Chan, & Ming-Chun Wang. (2020). Retail investor attention and herding behavior. *Journal of Empirical Finance*, 59: 109-132