LUND UNIVERSITY
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The Effects of Availability and Trust on Stock Market Participation
A cross-sectional study based on China

by

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Abstract:

This paper investigates the effects of behavioral finances on stock market participation by employing data from China Family Panel Study (CFPS). Availability and trust are chosen as the target variables to explain the participation problems in the stock market. The study finds evidence that financial service availability and individual trust have positive influences on the stock market participation decisions. Further, when compared with financial service availability, regional economic advance does not show a significant impact on the participation rate. Additionally, a counter-intuitive finding is that females are more likely to participate in the stock market as family head in China.

Keywords: *Stock Market Participation Puzzle, Availability, Trust and Salience Theory*

Acknowledgements

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1 Introduction

Household finance studies how households use financial instruments to achieve economic objectives and has been investigated quite intensively in recent years (Guiso & Jappelli, 2005; Campbell, 2006). In general, scholars have focused on specific aspects of household finance such as participation puzzle (Haliassos & Bertaut, 1995), diversification problem (Graham, Harvey & Huang, 2005) and mortgage decisions (Campbell & Cocco, 2003).

Stock market participation puzzle, which was first introduced by Haliassos and Bertaut (1995), has attracted extensive interest in existing literature (e.g. GG Pennacchi, 2008; Bertaut & Starr-McCluer, 2002). According to Pennacchi (2008)'s standard financial theory, all individuals should invest a fraction of their wealth into risky assets. The reality, however, is not as ideal as the standard financial theory. Following the studies of Bertaut and Starr-McCluer (2002) and Tracy, Schneider, and Chan (1999), it is found that many households have negligible financial assets. Even the median household has a slight fraction of financial assets.

Empirical research states that fixed participation cost is the primary explanation for the participation puzzle. For instance, Vissing-Jorgensen (2003) examines the impact of these costs on stock market participation and concludes that rational participation decision can be dramatically different when adding these types of costs. One interpretation is that participation costs account a greater fraction of a poor household's wealth than a rich one, making it a rational strategy for low-income families to stay out.

Other evidence, however, shows that even wealthy individuals do not always invest in stocks. For instance, Guiso and Sodini (2012) report that, even among the top 5% most affluent investors, 28% have no stock in the Netherlands, 39% in Germany, and 75% in Spain. This implies that fixed participation cost is not the only explanation for the low rate. The demographic factors, such as income, age, and education are also important (Campbell, 2006).

To date, research in behavioral finances has explored several variables, such as the fame effect, mental accounting, availability, trust and overconfidence (Chuah & Devlin, 2010). In this study, availability and trust are selected as target variables, which are current research hotspots.

This paper investigates behavioral finance and attempts to explain the low participation rate in the stock market from both an external (availability) and internal (trust) perspective. Besides, the previously discovered determinants such as household wealth, income, family size, age gender and education are included in this study to describe wealth effect and demographic effect.

This research employs data from China Family Panel Study (CFPS). The sample draws data from most of the provinces in China, ensuring that the statistics are diverse enough. The data is collected by cross-section, and to deal with the potential fixed effect of this data type, we include regional GDP per capita as control variable.

In this study, Logit model and Tobit model are applied to investigate the relationship between the variables of behavioral finances and stock market participation. Logit model is employed because of the binary dependent variable (stock market participation decision). Marginal effects will be included to help to explain the results of Logit model. There is another step before Logit model is processed. That is to decompose the availability into two parts to obtain the pure availability effect regardless of regional economic difference.

Besides, Tobit model is used to study the effects of variables on the participation level, which is about the direct stock share invested in the financial asset as well as direct & indirect share invested in the financial asset. Moreover, the results of OLS model will also be employed as the benchmark.

In general, our research supplements existing literature on behavioral aspects that affect market participation. Our main contribution is to apply an adjusted availability measure to describe the availability of local financial service and investigate trust variable in the meantime. The data selection can be a contribution as well. To our knowledge, this is the first article to connect CFPS with data of securities company branch and apply it to behavioral finance study.

The structure of the remainder of this study is as follows. The subsequent section reviews existing literature and provides a discussion on the theoretical background of the behavioral determinants of stock market participation. The third provides an overview of the data sample, introduces the variables, and describes the methodology employed. Next section presents the empirical results from Logit and Tobit models.

Marginal effects of the variables are also given. The fifth section presents the discussion on empirical results. The last section concludes.

2 Literature Review

2.1 Household Finance

In 2006, John Campbell coined the name "Household Finance" for the field of financial economics that studies how households use financial instruments to achieve their objectives. Since then, household finance has attracted much academic interest. Today, given the increased complexity of household portfolios and growing importance for retirement provision management, it is of more importance to study this area (Christelis et al., 2009).

According to the framework by Campbell (2006), existing research has recently focused on three primary aspects of household finance such as participation puzzle (Haliassos & Bertaut, 1995), diversification problem (Graham, Harvey & Huang, 2005) and mortgage decisions (Campbell & Cocco, 2003).

2.2 Participation Puzzle: Theory and Reality

Having defined the concept of household finance, the subsection of this paper moves on to investigate one key aspect in this field. Stock market participation puzzle, which was first introduced by Haliassos and Bertaut (1995), has attracted much interest in existing research (e.g. GG Pennacchi, 2008; Bertaut & Starr-McCluer, 2002). In broad terms, stock market participation puzzle can be defined as the gap between what households are supposed to do according to theories and what they do in reality (Bertaut & Starr-McCluer, 2002).

In standard financial theory (GG Pennacchi, 2008), all individuals should at least hold a fraction of their wealth in risky assets regardless utility function and wealth base. According to his theory, investor i's utility is a function of risky share w_i :

$$f(w_i) = E[u(\widetilde{w}_i)] \tag{1}$$

where $\widetilde{w}_i$ means total asset after the investment and is presented as:

$$\widetilde{w}_i = w_0 w_i \tilde{r} + w_0 (1 - w_i) r_f \tag{2}$$

Where w_0 is risk-free asset before investment, $\tilde{r}$ and r_f are return on risk asset and risk-free return respectively.

By plugging (2) into (1), the following formula is obtained:

$$f(w_i) = E[u(w_0 r_f + w_0 w_i (\tilde{r} - r_f))] \tag{3}$$

The first order condition:

$$f'(w_i) = E[u'(w_0 r_f + w_0 w_i (\tilde{r} - r_f))w_0(\tilde{r} - r_f)] \tag{4}$$

$$f'(0) = u'(w_0 r_f)w_0 E(\tilde{r} - r_f) \tag{5}$$

It can be determined that the first term $u'(w_0 r_f)$ and second term w_0 in (5) are positive. Hence,

$$f'(0) > 0 \Leftrightarrow E(\tilde{r} - r_f) > 0 \tag{6}$$

$$w_i > 0 \Leftrightarrow f'(0) > 0 \Leftrightarrow E(\tilde{r} - r_f) > 0 \tag{7}$$

An implication from (7) is that all investors, independently of their wealth and of their preferences towards risk, should participate in risky assets markets (e.g. portfolio) as long as their expected return is greater than risk-free return.

The implication, however, fails to hold in reality. Household behaviors deviate from what normative models prescribe in most circumstances. Following the studies of Bertaut and Starr-McCluer (2002), Haliassos and Bertaut (1995), and Tracy, Schneider, and Chan (1999), it is almost certain that many households have negligible financial assets. Further, it has been reported that even the median household has a slight fraction of financial assets.

2.3 Determinants for Stock Market Participation Puzzle

To explore the participation puzzle, research (e.g. Campbell, 2006) have developed in a variety of directions, and many determinants are identified during the past decade.

Empirical research states that fixed participation cost is the primary determinants for the participation puzzle. For instance, Vissing-Jorgensen (2003) examined the impact of participation costs on stock market participation and concludes that rational participation decision can be dramatically different when adding participation costs. A broadly accepted interpretation is that fixed participation costs consume a bigger fraction of poor household's wealth and thus motivate the household to stay outside of

the stock market. Following this, total asset, as a measure of wealth is included in our study.

Even though the rate to participate is better for wealthy households compared to low-income households, the rate is still not high. For instance, 10% of the wealthiest households do not hold equity (US households in the 2007 wave of the SCF). This implies that wealth effect caused by fixed costs is not the only explanation for the low participation rate. The demographic factors, such as income, age and education may also be important.

Income, as a measure of future cash flow for households, can to some extent reflect the liquidity of asset. Further, expectation theory suggests that the higher income leads to higher marginal propensity to invest (Campbell, 2006).

Family size largely affects the economic decision of households since it may largely decide the risk tolerance of the household (Campbell, 2006). Intuition is that family size can reflect the number of kids in a family. Evidence has shown that whether a household has kids has an impact on the stock market participation (Campbell, 2006). The number of kid could largely impact household income or wealth. Thereby, having more kids stimulates risk aversion and makes it less likely to invest in the stock market.

Age has been studied for a long history as a determinant of the economic decision in a household. One of the famous theories is Modigliani's life cycle theory (Modigliani, 1966). According to this theory, people build up their stock of assets during their working life and use them after they retired. Thereby, it is reasonable to assume that this behavior is also reflected in stock market participation.

The participation rate also has clear differences between genders. For instance, Bajtelsmit, Jianakoplos and Bernasek (1996) have proven that male has a higher level of risk tolerance than female in general. The conclusion is confirmed by Dreber (2012), which examined the higher participate rate for men.

Education background is another determinant that cannot be ignored. In general, financial literacy has been identified as a factor that lowers the fixed participation costs. Well educated people are more likely to have stronger foundation on financial literacy and thus are more liable to perform risky investment (Cole & Shastry, 2009).

Further, articles have proved that self-reported risk attitude can to some extent impact stock market participation as well as diversification (Campbell, 2006). The article,

however, would have to exclude the risk attitude variable for lack of data. Although the absence of risk aversion variable can be a limitation, the harm to the empirical process is not strong as expected. Recent articles have found that gender, age, family income, parental background and other variables have an economically significant impact on individual's willingness to take risks (Dohmen, 2011). Thus, the risk attitude can be largely explained by established control variables.

2.4 Behavioral Finance

Despite the research that focuses on wealth and demographic effect (Campbell, 2006), a new area has taken a different direction in trying to identify behavioral related determinants.

Recent research in behavioral economics has already earned much attention from economists. In general, behavioral finance is an umbrella term for a range of approaches that seeks to understand and explains observed individual behavior more accurately than predictions associated with traditional finance theory. Given that wealth effect and demographic effect alone are not enough to explain the observed low market participation rates, more researchers try to explain the puzzle from behavioral finance.

Topics such as fame effect, mental accounting, availability effect, trust and overconfidence have been studied intensively (Chuah & Devlin, 2010). In following sections, research on availability and trust will be discussed.

2.5 Financial Service Availability

Bordalo, Gennalioli and Shleifer (2012) present the salience theory of choice among lotteries in which the attention of decision maker is attracted to salient payoffs. With this regard, people are considered to pay more attention to some rather than all aspects of the world due to the cognitive limitations. Taylor and Thompson (1982) define the salience as "the phenomenon that when one's attention is differentially directed to one portion of the environment rather than to others, the information contained in that portion will receive disproportionate weighting in subsequent judgments." Kahneman

and Miller's (1986) Norm Theory confirms the phenomenon. Additionally, Bordalo, Gennalioli and Shleifer (2012) also state the use of salience by economists to explain the phenomenon of people reacting to some salient data more strongly than less salient one. Thus the driver of salience can be used to think about many economic situations. For instance, in this study, if the financial institutions are more available, which means they are located in the more "salient" area or have more branches spread around the city, then people will be much easier to notice and access to them. Therefore, those people will be more likely to participate in the stock market through opening an account in one of those branches.

The main limitation is that not too many previous studies have explored the association between the financial service availability and stock market participation. Yin, Wu and Gan (2015) investigate the impact of financial availability on the financial market participation and portfolio choice of Chinese households both in formal and informal financial market. They find that an increase of financial availability will stimulate households to participate and to increase their risky asset holdings in the formal financial market while decrease in the informal financial market. Overall, as Yin, Wu and Gan (2015) state, the financial availability has a positive impact on households' participation in the formal market while a negative impact on the informal market. The main difference between our study and theirs is that rather than studying the whole financial market, this study will narrow the scope and explore the relationship between financial service availability and stock market participation based on Chinese household, which can be considered as a contribution. Additionally, the definition of financial service is different in this paper and focus will be placed on securities companies, rather than banks.

To measure the financial service availability in the paper, the method of Mookerjee and Kalipioni (2010) is applied. They study the effect of the availability of financial services on income inequality. To proxy the financial development they use data on financial services availability in ninety-nine countries, which is measured by bank branches' number per 100,000 populations. The difference in our paper is that the number of bank branches is replaced by the number of securities company branches. This is due to the reason that in China people can only trade stocks through opening an account in one of the securities company branches instead of bank branches.

2.6 Social Trust

Gambetta (2000) define trust as the "subjective probability with which an agent assesses that another agent or group of agents will perform a particular action." Guiso, Sapienza and Zingales (2008) define trust as the subjective probability individuals attribute to the possibility of being cheated. To determining whether the investors invest in the stock, they assume that investors know about the real returns distributions but are worried about the probability of experiencing some extreme bad events. Guiso, Sapienza and Zingales refer to all these negative events as "the firm cheats" (2008, p.7) and label with p the subjectively perceived probability this might occur. Finally, they identify the complementary probability $(1 - p)$ with the degree of trust an investor has in the stock.

In stock market participation puzzle, the level of trust is identified as an important determinant. Guiso, Sapienza and Zingales (2008) examines a three-card game to analyze the participation of the stock market. Most people will not participate the game with a reason of not trusting the fairness of the game. Recall those major financial scandals, for instance, the Enron and Madoff scandals. Enron is that Enron lied about its profits and stands accused of a range of shady dealings, including concealing debts so they didn't show up in the company's accounts. Besides, the Madoff investment scandal was a major case of stock and securities fraud. Bernard Madoff admitted that the wealth management arm of his business was an elaborate Ponzi scheme. History has proven that the stock market is not a fair game all the time. As stated in the study of Giannetti and Wang (2014), corporate fraud disclosing leads to lower trust in the probability of participating in the stock market.

Many previous studies have proved that the strong effect of trust on stock market participation. By studying in Dutch and Italian micro data, Guiso, Sapienza, and Zingales (2008) prove that the lack of trust is an essential factor to explain the limited participation puzzle. They document a positive relationship between trust and stock investment. In addition, they also correlate the stockholders' share in each country with the average level of trust and find that those countries with high prevailing trust have a higher stock ownership rates. The results show that prospective investors who live in low-trust countries or do not trust in others are more sensitive about being cheated, which prevent them from holding stocks. Further, based on the study above, Asgharian,

Liu and Lundtofte (2014) develop a framework to analyze the formation of trust and the impact of trust on stock market participation. The main difference of their model is that they consider that trust is formed through learning. They explore the relationship between institutional quality, trust and stock market participation by using a large sample of European (SHARE survey) data that covered 30,000 individuals in 14 European countries. They show that the level of trust related to institutional quality has a strong impact on the probability of stock market participation. Besides, they also find that immigrants' probabilities of participation are affected by institutional quality of both their country of residence and origin. Mårten Hagman (2015) prove the significance of trust in the decision of stock market participation by using the data containing over 60,000 individuals across 15 countries. In fact, they find that trust is a much better predictor of stock market participation rate than GDP per capita. High trust has a strongly positive correlation with stock market participation.

Moreover, Georgarkos and Pasini (2011) firstly test trust combined with sociability. They argue that both trust and sociability should be considered when studying the household's decision of participating stock market; however, they also find that a reduction of trust can be offset by an increase of sociability.

In this study, trust is measured as a dummy variable, which 1 represents high trust level while 0 means low. The result is gathered from general trust question from CFPS Questionnaire 2012. The question is about "do you think most people is trusted or untrusted when you get along with them?"

3 Methodology

3.1 Data

The required data is collected from CFPS, which is short for China Family Panel Studies. According to the website of CFPS(2010): CFPS is a nationally representative, annual longitudinal survey of Chinese communities, families, and individuals launched in 2010 by the Institute of Social Science Survey (ISSS) of Peking University, China. The CFPS is designed to collect individual-, family-, and community-level longitudinal data in contemporary China. The studies focus on the economic, as well as the non-economic, wellbeing of the Chinese population, with a wealth of information covering such topics as economic activities, education outcomes, family dynamics and relationships, migration, and health. The CFPS is funded by the Chinese government through Peking University, which promises to provide to the academic community the most comprehensive and highest-quality survey data on contemporary China. In the 2010 baseline survey, it successfully interviewed almost 15,000 families and almost 30,000 individuals within these families, for an approximately response rate of 79%. The respondents of it are tracked through annual follow-up surveys. Most data we use in our study is from CFPS questionnaire 2012.

However, the development of financial sectors, which is different from the personal characteristics of households, is not a part of the survey. Thus this study targets on the Securities Association of China, known as SAC, which provides the data regarding the financing deepening in China. SAC is a self-regulatory organization for securities industry and monitors all its members. The data of securities companies' branches of different provinces is found from the database of SAC, which is crucial for the construction of the independent variables. Besides, GDP and population of each province are collected from Chinese Statistical Yearbook.

Table 1 shows the statistics summary of the data in the study and Table 2 is the overview of the data across different provinces.

[Table 1] Statistics Summary

	Mean	Median	Maximum	Minimum	Std. Dev.	N
DSHOLD	0.04	0	1	0	0.19	12115
DISHOLD	0.05	0	1	0	0.23	12115
DSSHARE	0.01	0	1	0	0.09	12115
DISSHARE	0.02	0	1	0	0.12	12115
AVAI	0.05	0.03	0.21	0.01	0.05	12115
TRUST	0.56	1	1	0	0.50	12115
LNTA	11.92	12	17.34	2.48	1.38	12115
LNTA2	144.11	144.09	300.83	6.17	32.09	12115
LNIN	10.15	10.39	14.93	0.69	1.30	12115
LNIN2	104.66	107.87	222.79	0.48	24.41	12115
FAMILY	3.83	4	17	1	1.77	12115
AGE	50.26	49	93	16	14.13	12115
AGE2	2725.87	2401	8649	256	1459.73	12115
GENDER	0.59	1	1	0	0.49	12115
EDU1	0.13	0	1	0	0.34	12115
EDU2	0.07	0	1	0	0.26	12115
LNGDP	1.27	1.21	2.12	0.49	0.00	12115

[Table 2] Overview of Variables (Province)

	DSHOLD	DISHOLD	DSSHARE	DISSHARE	AVAI	TRUST	N
Anhui	0.00	0.00	0.00%	0.00%	0.02	0.69	254
Beijing	0.13	0.18	3.95%	5.78%	0.13	0.69	67
Chongqing	0.05	0.06	0.97%	1.74%	0.04	0.62	130
Fujian	0.00	0.02	0.00%	1.10%	0.06	0.39	122
Gansu	0.02	0.03	0.71%	1.31%	0.02	0.57	1312
Guangdong	0.04	0.06	1.39%	2.50%	0.06	0.51	1003
Guangxi	0.00	0.00	0.42%	0.42%	0.02	0.57	227
Guizhou	0.01	0.01	0.24%	0.35%	0.01	0.41	382
Hebei	0.01	0.03	0.23%	0.78%	0.02	0.57	668
Heilongjiang	0.01	0.04	0.65%	1.54%	0.03	0.60	412
Henan	0.03	0.05	1.60%	2.54%	0.02	0.56	1375
Hubei	0.08	0.10	3.44%	4.53%	0.03	0.58	208
Hunan	0.07	0.08	2.02%	3.02%	0.03	0.61	378
Jiangsu	0.00	0.03	1.02%	1.78%	0.04	0.49	255
Jiangxi	0.00	0.01	0.67%	0.99%	0.03	0.43	252
Jilin	0.01	0.03	0.94%	1.79%	0.03	0.47	256
Liaoning	0.04	0.05	1.42%	2.01%	0.05	0.57	1295
Shaanxi	0.03	0.05	1.06%	1.59%	0.03	0.55	260
Shandong	0.00	0.01	0.29%	0.40%	0.03	0.54	636
Shanghai	0.17	0.24	6.90%	9.71%	0.21	0.58	952
Shanxi	0.00	0.01	0.26%	0.57%	0.03	0.52	504
Sichuan	0.01	0.02	0.30%	0.47%	0.03	0.68	544
Tianjin	0.08	0.13	1.57%	4.17%	0.08	0.61	79
Yunnan	0.00	0.03	0.28%	1.58%	0.01	0.54	344
Zhejiang	0.00	0.03	0.51%	1.51%	0.07	0.59	200

Figure 1 shows the participation decision about direct stockholding and direct and indirect stockholding of each province. It is noticed that in some big and developed cities, for instance, Beijing, Shanghai and Tianjin, people more tend to participate in the stock market. In contrast, some provinces, like Guangxi, Shandong, and Shanxi, which are less developed relatively, people tend to hold less. The similar results can

also be found in Figure 2. The difference is that figure 2 shows the participation level, which is measured by a ratio of holding value to the financial asset. Based on differences between the stock market participation of developed and undeveloped cities, GDP should be considered as one of the control variables to capture and reflect the regional development heterogeneity.

[Figure 1] Participation Decision
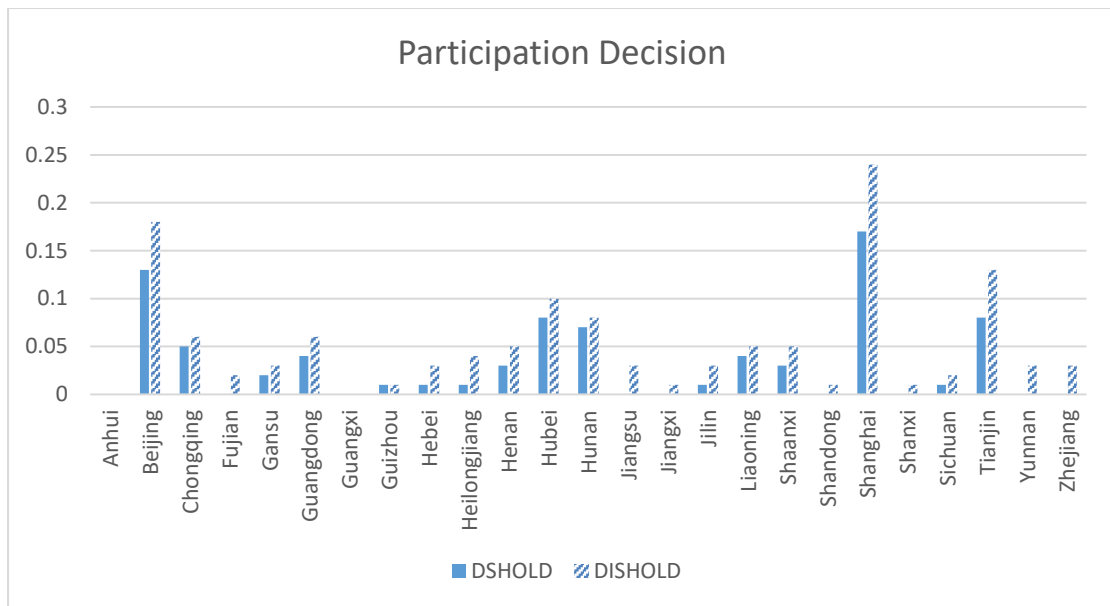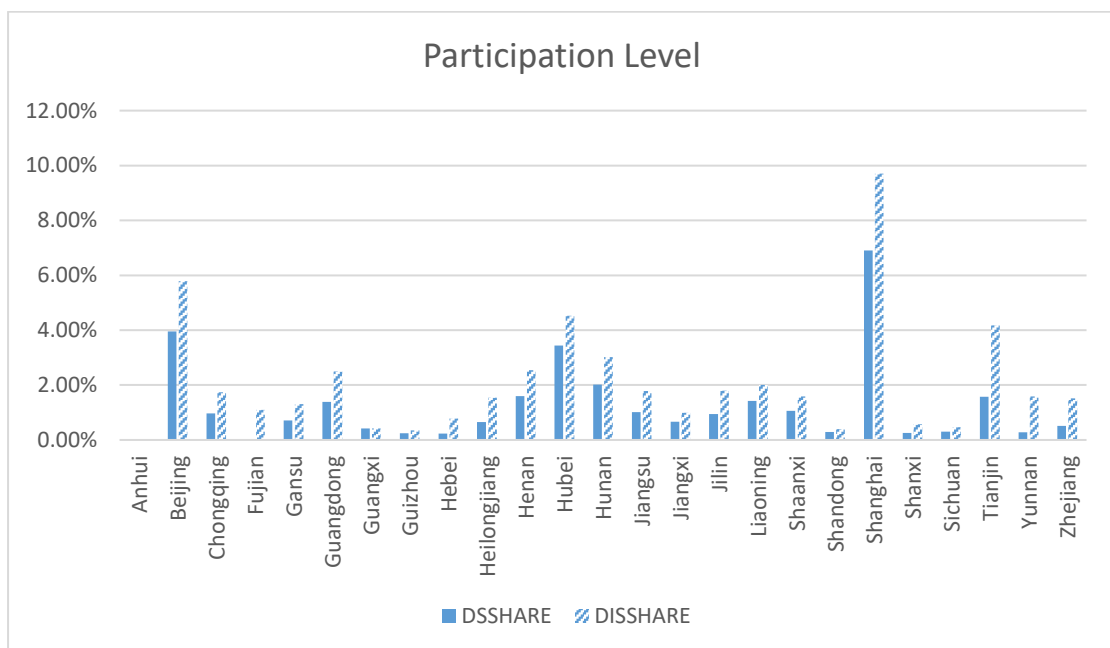

[Figure 2] Participation Level

Figure 3 shows the stockholding and financial service availability in each province. After lining the points in the figure, it is demonstrated that the changing trend of two lines is consistent with each other, which means if there are more securities company branches in the province then people there are more likely to hold more stocks. Further, figure 4 shows scatter plots and confirms the positive correlation between two variables. Therefore, one of the hypotheses of the study can be presented is that it could be a positive relationship between the financial service availability and stockholding, which will be demonstrated through the further regressions.

[Figure 3] Direct Stockholding and Availability
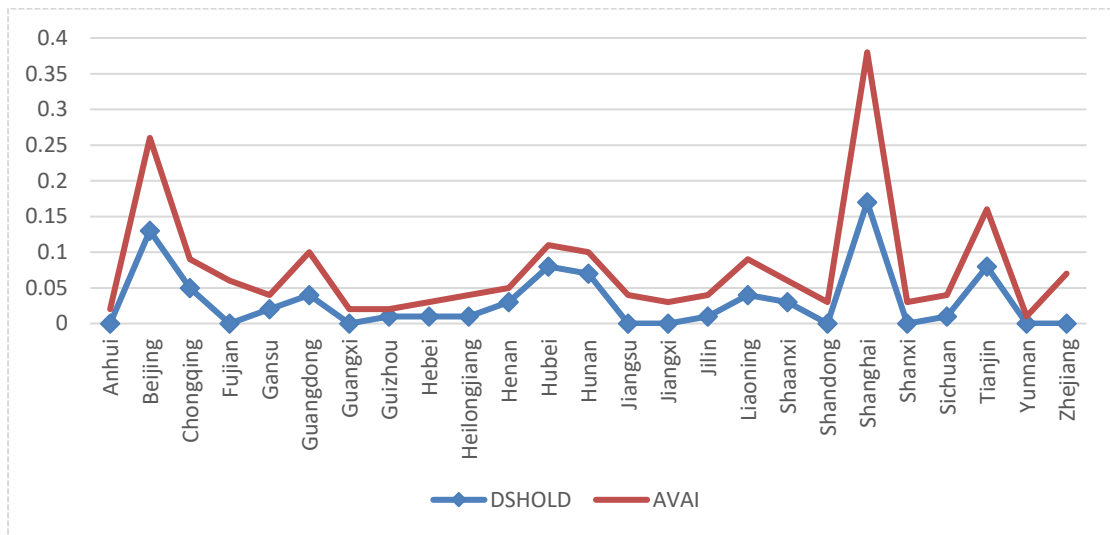
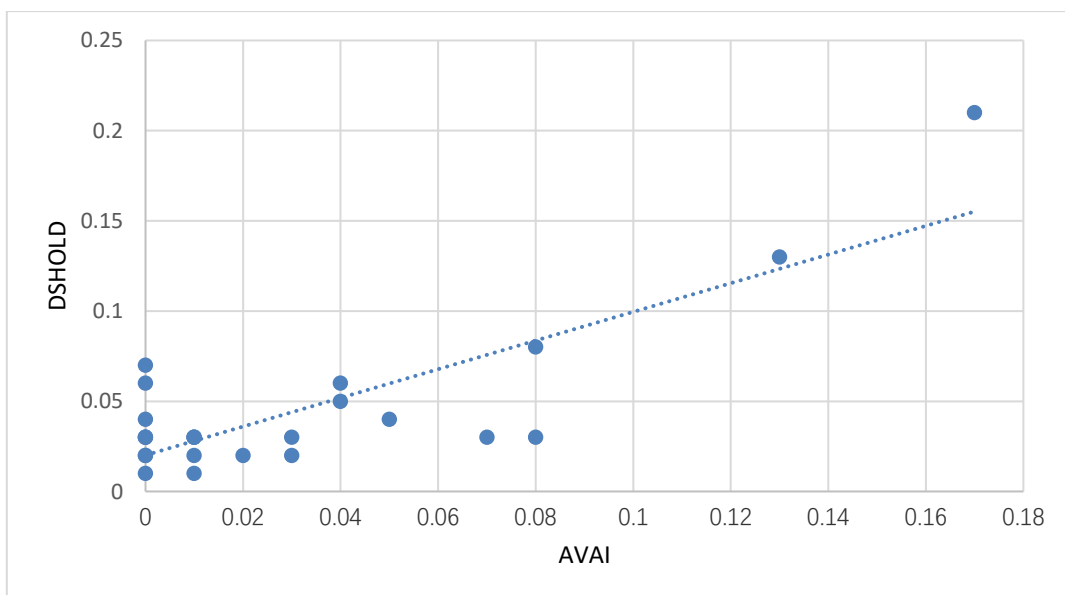[Figure 4] Direct Stockholding and Availability (Scatter)

Figure 5 shows the stockholding and trust of people in each province. It can be noticed that the consistency of lines is less distinct than that illustrated in figure 3, but it can be concluded that people with higher level of trust will have a higher probability to participate in the stock market. Figure 6 shows the plots and implies the positive influence from trust variable. Hence, the hypothesis is that there might be a positive impact on participation rate from trust attitude.

The rest figures and hypothesis regarding DISHOLD, DSSHARE, and DISSHARE show the similar situation and are presented in the appendix.

[Figure 5] Direct Stockholding and Trust
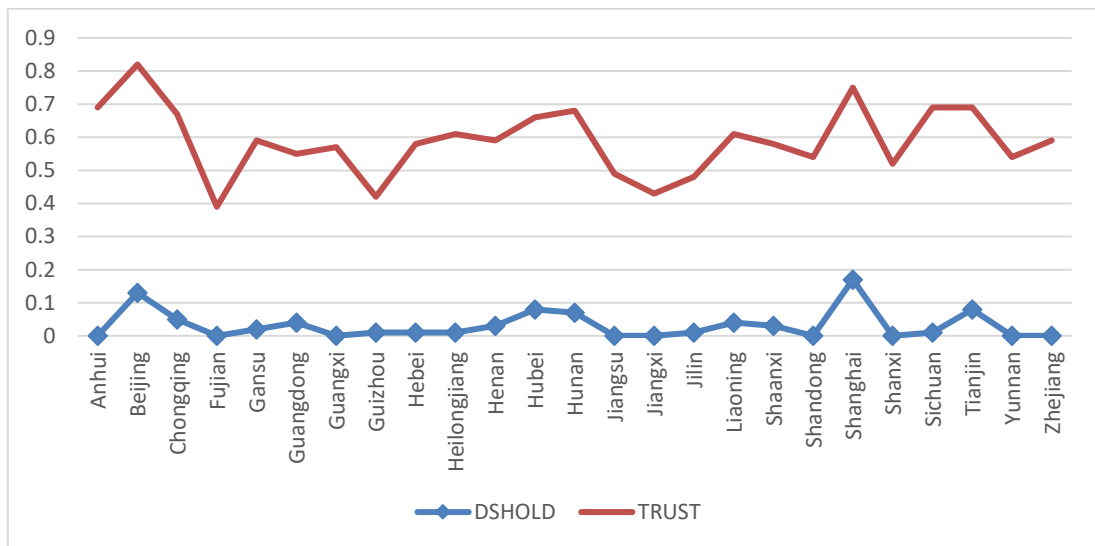
[Figure 6] Direct Stockholding and Trust (Scatter)
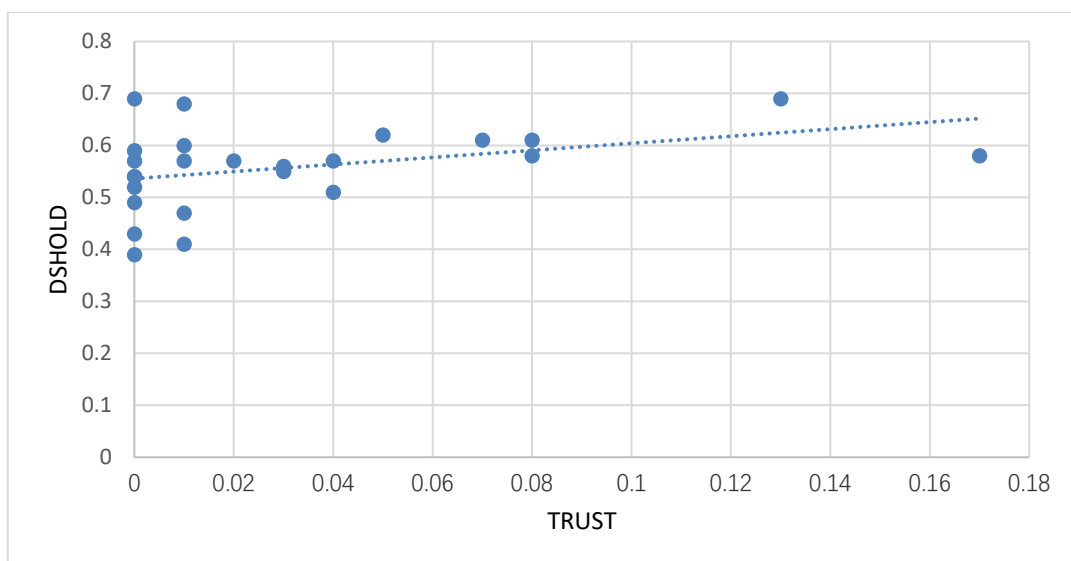
3.2 Variables

This paper will discuss four dependent variables and two independent variables. The control variables, which describe wealth effect and demographic effect, are also included.

3.2.1 Four dependent variables:

- *Participation decision:*

There are two variables to measure participation decision. One is whether people has direct stockholding or not, which is expressed as DSHOLD = 1 or 0. 1 represents people have the direct stockholding, 0 means not. Direct stockholding means people hold the share by investing in the stock market. The other variable is whether people have direct and indirect stockholding, which is expressed as DISHOLD = 1 or 0. Indirect stockholding means people hold the share indirectly by investing in the fund. About DISHOLD, 1 represents the household holds the stock or once bought the stock; 0 means the household has never participated into equity markets.

- *Participation level:*

Another two dependent variables are about participation level. One measures the ratio of household's direct stockholding to its financial asset size. The other is the ratio of household's direct and indirect stockholding to its financial asset size. They represent to the extent of the household participating in the stock market, which is expressed as follows:

$$\text{DSSHARE} = \frac{\text{Value of direct stockholding}}{\text{Financial asset}}$$

$$\text{DISSHARE} = \frac{\text{Value of direct and indirect stockholding}}{\text{Financial asset}}$$

3.2.2 Two independent variables:

- *Availability:*

The first independent variable is the convenience for the participation in the equity market. More specifically, it represents the convenience for households to open

accounts, trade stocks and receive other financial services. It is expressed as:

$$\text{AVAI} = \frac{\text{Number of securities company branches in a province}}{\text{Province population}}$$

- **_Trust:_**

The second independent variable is trust, which is gathered from general trust question from CFPS Questionnaire 2012. The question is "do you think most people is trusted or untrusted when you get along with them?" The variable is expressed as follows:

Trust =1 or 0,

where 1 represents high trust level while 0 means low.

3.2.3 Eight control variables:

- **_Ln (total asset) and_** $(Ln(total\ asset))^2$ are expressed as LNTA and LNTA2 in our study respectively, which is the total asset of each household. Log transformation is applied with the consideration of the changes in the dependent variable that may be related to the percentage change of total asset. Besides, the square of the variable is also added to model more accurately the effect of total asset, which may have a non-linear relationship with the dependent variable. These two control variables are added to represent the effect of wealth.
- **_Ln(income) and_** $(Ln(income))^2$ are expressed as LNIN and LNIN2, which is the income of a family. Log transformation and squared variable are also used. The variables are added to capture the liquidity.
- **_Family size_** is expressed as FAMILY. As direct data of risk aversion cannot be found, the size of a family is used to represent it because the number of family members will result in different risk level of each family.
- **_Age and_** Age^2 are expressed as AGE and AGE2, which is each people's age. Age effects on equity market participation are reported by Bertaut and Starr-McCluer (2002). Age is expected, which is the age of the household head, to have a positive sign and squared age to have a negative sign to capture the hump-shaped life-cycle pattern of stock holdings (Jagannathan and Kocherlakota, 1996).
- **_Gender_** is a dummy variable in the study, which is expressed as GENDER. 1

represents the male, 0 represents female. It's about the gender of the master of each family. This variable can also be seen as the indirect representative of risk aversion due to regularly female and male will show different risk preference.

- *Education* is expressed in two dummy variables EDU1 and EDU2 to capture the effects of financial literacy and cognitive ability, which represent the education level of each people. EDU1 reflects high school education (equal to 1 if the head of household has a high school education) and EDU2 is equivalent to college education (equal to 1 if the head of household has a college education), to control for education effects.

  EDU1= 1 or 0, where 1 represents high school, otherwise is 0.

  EDU2 = 1 or 0, where 1 represents getting a Bachelor degree or higher, otherwise is 0.

  In the analysis, some characteristics of the household head such as age, gender, and education, are attributed to the entire household. The head of the household is defined as the family member who knows the family situation most. Priority is given to adult (aged 18 or above).

- *LN(GDP per capita)* is expressed as LNGDP, which is equal to the GDP in each province divided by the population. The aim is to capture the regional development heterogeneity.

3.3 Models

In this subsection, regression models that match our existing variables and data are selected. The hypothesis for specific models will also be presented. Further, Ordinary Least Square Method, which is not employed in our regression, will be presented in the appendix as the benchmark.

3.3.1 Participation Decision: Logit Model

For dependent variables, direct stock holding (DSHOLD), and direct and indirect stock holding (DISHOLD), Logit Model is selected for regression.

The two variables describe the participation decision problem and reflect binary data. Specific, both DSHOLD and DISHOLD are discrete-choice measures which equal 1 if a household participates in the stock market (directly or indirectly) and 0 otherwise.

The Logit model is employed in this study for the consideration of the binary dependent variables.

The Logit model is a regression model where the dependent variable is categorical. Most common case covers a binary dependent variable—that is, where it can take only two values, "0" and "1". In the terminology of economics, it is used as a discrete choice model.

The model is specified as follows:

$$Prob[\text{Participation\_decision} = X_i^p] = 1 - F(-\beta'X_i^p) \qquad (2)$$

Where X_i^p is the vector of all explanatory variables including Availability, Trust dummy, Ln(total asset), $(\text{Ln}(\text{total asset}))^2$, Ln(income), $(\text{Ln}(\text{income}))^2$, Family size, Age, Age^2, Gender, Education dummy 1, Education dummy 2, Ln(GDP per capita). One is also included in this vector. And, β means the corresponding vector of parameters. Specifically, β_1 is the coefficient of Availability and β_2 is the coefficient of Trust and so forth.

Based on previous analysis on statistic summary and figures, the hypothesis on the two Logit models is as follows:

Hypothesis: H_0: β_1 =0; H_1: β_1 >0

                           H_0: β_2 =0; H_1: β_2 >0

3.3.2 Participation Decision: Marginal Effect

The coefficients of Logit model show that how the variables affect the odds ratio or the log odds ratio. However, there is limited clue on how the variables affect the probability of owning stocks. Hence, marginal effects will be included in the study.

The marginal effects are computed in a conventional way. We take the derivative on the probability of owning stocks in regard to a particular explanatory variable, while the other variables will be held invariable at their mean value.

The marginal effect is specified as follows:

$$\text{Change in percent of probability of holding stocks} = \frac{(\frac{\partial y}{\partial x_i})}{\hat{y}} \qquad (3)$$

In the case of dummy variables (e.g. GENDER, EDU1, EDU2), the partial derivative is approximated by a discrete change of the variable from 0 to 1. When the variables in the x-vector of the model are at their mean values, the response variable's predicted value of is the owning stocks' predicted probability.

In later sections, analysis and discussion of Logit model will be based on marginal effect coefficients rather than original coefficients.

3.3.3 Participation Level: Tobit Model

For regression on direct stock share invested in financial asset (DSSHARE) and direct & indirect share invested in financial asset (DISSHARE), we may need to review our data first. An unsurprising fact is that households in China had an extremely low participation rate (3.7%). The fact may even influence the regression on participation level problem. Removing the blank items is a quite common way when it comes to the study on stock share invested in financial assets.

It is, however, not a fair way in our case since the small size of sample can be harmful to the precision and robustness of the model. To solve the problem, several theoretical papers (e.g., Orosel, 1998; Haliassos and Michaelides, 2003; Gomes and Michaelides 2005; and Ball, 2008) have treated stock market non-participation (i.e., zero stock holding) as part of a household's portfolio choice. Therefore, we keep the item with zero value.

In this way, Ordinary Least Squares Regression is not suitable to study the proportion of stock holdings given that a significant fraction of zero items. Consistent with this line of reasoning and following the empirical methodology employed by Guiso et al. (1996), Hochoguertel (2002) and Cocco (2005), we adopt Tobit Model where the lower limit is 0 (a household holds no stock). Tobit Model is specified as follows:

$$\text{DSSHARE} = \begin{cases} \beta_i'X + \varepsilon & \text{If RHS} > 0 \\ 0 & \text{If RHS} \leq 0 \end{cases} \qquad (4)$$

$$\text{DISSHARE} = \begin{cases} \beta_i{}'X + \varepsilon & \text{If RHS } > 0 \\ 0 & \text{If RHS } \leq 0 \end{cases} \tag{5}$$

Where $\text{RHS} = \beta_0 + \beta_1 \text{AVAI} + \beta_2 \text{TRUST} + \beta_3 \text{LNTA} + \beta_4 \text{LNTA2} + \beta_5 \text{LNIN} + \beta_6 \text{LNIN2} + \beta_7 \text{FAMILY} + \beta_8 \text{AGE} + \beta_9 \text{AGE2} + \beta_{10} \text{GENDER} + \beta_{11} \text{EDU1} + \beta_{12} \text{EDU2} + \beta_{13} \text{LNGDP}$

The twelve explanatory represent Availability, Trust dummy, Ln(total asset), $(\text{Ln(total asset)})^2$, Ln(income), $(\text{Ln(income)})^2$, Family size, Age, Age^2, Gender, Education dummy 1, Education dummy 2, Ln(GDP per capita) respectively.

Based on previous analysis on statistic summary and figures, our hypothesis on the two Tobit model is as follows:

Hypothesis: $\quad$ $H_0: \beta_1 = 0$; $H_1: \beta_1 > 0$

$\quad\quad\quad\quad\quad\quad$ $H_0: \beta_2 = 0$; $H_1: \beta_2 > 0$

4 Empirical Results

This section presents regressions and results. The first step is to decompose the availability into two parts, to obtain the pure availability effect regardless of regional economic difference. Then the Logit model (with marginal effects) and Tobit model are processed and results are presented in Table 5. The estimated coefficients from Ordinary Least Square (OLS) method is given in the appendix.

4.1 Decomposition

Table 6 (in Appendix) shows that the correlation coefficient is around 0.75, which is extremely high compared to other coefficients. This indicates that the chance is high that Availability and LNGDP are largely explaining the same mechanism. To solve this, we start by analyzing the impact of GDP per capita on level of availability. The purpose is to decompose the availability variable into one part that is explained by GDP per capita and one part that is not.

To give a simple illustration of the relationship between the two variables, we start by applying OLS. The result is presented in Table 3. Based on the results, the residual series is obtained as the unexplained part in availability. Table 4 presents the descriptive statistics of this new variable. After the step of decomposition, adjustments on the name of original variables are required. Variable AVAI is removed and coefficient β_1 is attributed to new established variable UNEX.AVAI. This means that the research focus is now on pure effect of availability instead of the complete effect of availability. In addition, LNGDP is redefined as EX.AVAI, meaning explained part of availability. This is for comparison.

[Table 3]Decomposition Results

	Availability
Constant	-0.065***
	(0.001)
LNGDP (EX.AVAI)	0.088***
	(0.001)

[Table 4] Statistics Summary (UNEX.AVAI)

	Mean	Median	Maximum	Minimum	Std. Dev.	N
UNEX.AVAI	0.00	-0.01	0.09	-0.06	0.00	12115

4.2 Regression Results

[Table 5] Regression Results

	Logit Model		Marginal Effect		Tobit Model	
	(1)	(2)	(3)	(4)	(5)	(6)
	DSHOLD	DISHOLD	DSHOLD	DISHOLD	DSSHARE	DISSHARE
C	57.398***	34.935***			-12.026***	8.538***
	(8.166)	(5.433)			(2.071)	(1.487)
UNEX.AVAI	**6.575***	**6.901***	**0.037***	**0.101***	**1.819***	**2.095***
	(1.367)	(1.162)	(0.010)	(0.019)	(0.427)	(0.383)
TRUST	**0.277**	**0.223**	**0.002**	**0.003**	**0.104***	**0.084***
	(0.119)	(0.098)	(0.001)	(0.001)	(0.036)	(0.031)
LNTA	**2.125**	**1.655**	**0.012***	**0.025***	**0.303**	**0.354 ***
	(0.893)	(0.694)	(0.005)	(0.009)	(0.227)	(0.194)
LNTA2	**-0.053**	**-0.036**	**0.000***	**-0.001**	**-0.003**	**-0.005**
	(0.034)	(0.026)	(0.000)	(0.000)	(0.009)	(0.008)
LNIN	**5.683***	**2.308***	**0.032***	**0.034***	**1.127***	**0.463**
	(1.236)	(0.719)	(0.006)	(0.010)	(0.309)	(0.187)
LNIN2	**-0.237***	**-0.092***	**-0.001***	**-0.001***	**-0.046***	**-0.017***
	(0.055)	(0.033)	(0.000)	(0.000)	(0.014)	(0.009)
FAMILY	**-0.236***	**-0.169***	**-0.001***	**-0.002***	**-0.073***	**-0.057***
	(0.043)	(0.034)	(0.000)	(0.001)	(0.013)	(0.011)
AGE	**0.085***	**0.100***	**0.000***	**0.001***	**0.025***	**0.027***
	(0.025)	(0.021)	(0.000)	(0.000)	(0.008)	(0.007)
AGE2	**-0.001***	**-0.001***	**0.000***	**0.000***	**0.000***	**0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GENDER	**-0.233**	**-0.388***	**-0.001**	**-0.006***	**-0.064***	**-0.127***
	(0.110)	(0.092)	(0.001)	(0.001)	(0.034)	(0.030)
EDU1	**1.219***	**1.329***	**0.007***	**0.02***	**0.402***	**0.445***
	(0.135)	(0.112)	(0.001)	(0.002)	(0.043)	(0.038)
EDU2	**1.495***	**1.810***	**0.008***	**0.027***	**0.492***	**0.593***
	(0.150)	(0.128)	(0.002)	(0.003)	(0.050)	(0.046)
EX.AVAI	**0.129**	**0.137**	**0.001**	**0.002**	**0.127**	**0.093***
	(0.140)	(0.115)	(0.001)	(0.002)	(0.043)	(0.037)
Pseudo R^2	0.311	0.308			0.307	0.293
AIC	0.214	0.294			0.233	0.317
Log L.	-1284.462	-1767.312			-1396.519	-1907.454
N	12115	12115	12115	12115	12115	12115

In Table 5 the standard errors of the coefficients are showed in parenthesis, where ***
indicates the coefficient's estimate in the model is different from zero at the 1%
significance level, ** at the 5% level, and * at the 10% level.

Column (1) to (4) in Table 5 show the coefficients and marginal effects from the Logit
model, and column (5) and (6) display the coefficient estimates from the Tobit model.

The unexplained part from availability, which can be considered as the pure availability
effect, shows a very significant influence on stock participation. In column (3) and (4),
the marginal effect coefficients are 0.037 for direct stockholding, and 0.101 for direct
and indirect stockholding. This implies that by increasing availability by one standard
deviation, the marginal effect of direct stockholding will increase by 3.7%. For direct
and indirect stockholding, it will increase by 10.1%. When it comes to the share
invested in financial asset, the effects are even stronger. The direct stockholding share
reflects the coefficient of 1.819 and the number becomes 2.095 when the indirect
stockholding is included.

Meanwhile, we may turn to another variable which lies in the bottom part of Table 5,
EX.AVAI (LNGDP). This variable seems to be utterly insignificant under any
circumstances. The result is certainly interesting deserves more discussion in next
section.

For the trust variable, the influence is obviously significant. In column (3) and (4),
dummy variable of trust seems to have a weak positive impact on stock market
participation. The marginal effect coefficients in Logit model are 0.2% and 0.3%. This
means that one standard deviation increase in the trust level will result in the 0.2%
increase in the marginal effect of direct stockholding. While for the direct and indirect
stockholding, the marginal effect will increase by 0.3%. Thus, it shows that the results
for trust reflect the very slight influence from the general trust attitude compared to the
changes of marginal effect of availability. On the other hand, the column (3) and (4)
regarding Tobit model show that trust shows the positive coefficient of 0.104 thus can
simulate the direct stock share invested in stock market. This is true even after including
the method of indirect stock share from funds. The coefficient is 0.084.

Most of the rest variables seem to show significant influences on stock market
participation. However, total asset is exceptions. This variable shows a completely
insignificant impact on stock share variables though it still has positive impacts on

stockholding decisions (0.012 and 0.025). For stockholding decisions, a hump-shape curve can be observed since the coefficients of squared total asset are negative.

Income and education show positive impacts for all models. Income display similar hump-shape curve as total asset. And EDU2, which is a measure of higher education background, indicates higher coefficient than EDU1. On the other hand, family size and gender show negative signs on their coefficients. The sign of gender will be discussed more in later discussion.

By contrast, the impact of age is significant but weak in Logit model. The marginal effect is nearly zero for DSHOLD and DISHOLD. However, the coefficients are 0.025 and 0.027 in Tobit model. The squared terms keep slight though.

Three specification tests are applied in the study: Pseudo R-square, Log likelihood and Akaike information criteria. According to test results, all models display similar test values while the logit model on direct stockholding seems to outperform others slightly. Specifically, the Pseudo R^2 implies this model explains 31.1% of the variability in stock market participation.

5 Discussions

5.1 Availability and Stock Market Participation

The results confirm our hypotheses: the pure availability has a significantly positive effect on stock market participation. This is in accordance with the previous studies (Mookerjee & Kalipioni, 2010; Yin, Wu & Gan, 2015).

As mentioned in section 2, the effect of availability can be explained from the perspective of salience theory. Following Kahneman and Miller's (1986) Norm Theory, we capture the choice context by the "evoked set," which is the set of goods that come to the agent's mind when making his choice. As long as the consumer has some expectation about the choice setting, the evoked set is larger than the choice set. Following this, people tend to rate the probability of an event by the ease with which you can remember.

Availability, as an importance measure of salience, is usually a useful heuristic tool (Chuah & Devlin, 2010). Accordingly, if an individual can easily remember an event, there is a chance that he just experienced it or were exposed to it.

Following this, the salience theory can be applied to individual/ household choice. Bordalo, Gennaioli and Shleifer (2012) state that choices are made in context and that in particular goods are evaluated by comparison with other goods the decision maker is thinking about. Further, the salience of each good's attributes relative to the reference good, determines the attention the decision maker pays to these attributes as well as their weight in his decision.

Intuitively, financial service, which includes opening account and trading stock is also a typical type of goods. Thus, theory from Bordalo, Gennaioli, and Shleifer (2012) can be extended and applied in this case. This means that the salience trait of the financial service is the availability of securities company branches. When branched networks become more available, the salience effect leads households to overweight stock investment compared to other investment choices. Therefore, it is possible that household participation is influenced by salience effect from securities company branches.

As comparison, the unexplained part of availability is also required to be analyzed. As shown in Table 5, EX.AVAI, meaning Ln(GDP per capita) is completely insignificant under any circumstances.

At the very first step, Ln(GDP per capita) is included to control the regional fixed effect, which can be observed in Figure 1 and 2. And then the decomposition of Availability is processed due to the fact that Availability and Ln(GDP per capita) have an extremely high correlation coefficient which is around 0.75. However, results have shown that pure availability effect can largely explain participation problem while economic difference is totally insignificant. Thus, we may conclude that the regional fixed effect that we observe does not exist in this study.

In another word, the high participation rate in a big city is caused by the salient branch network of securities company and economic advance in that city does not play an important role. This implies the branch network construction may directly stimulate the stock market participation even in undeveloped regions.

5.2 Trust and Stock Market Participation

In general, Table 5 shows that the sign and coefficients are consistent with most studies in the field of trust theory. Even though the positive impact is weaker than expected, it is still proved that, in theory, the level of trust can be considered as an explanation regarding the variation of individual participation in the stock market. Many social scientists have proven the trust stimulates the success of the market economies as well as the development of the stock market. The lack of trust would make it very costly to arrange for alternative sanctions and guarantees, and many chances of mutually beneficial cooperation would have to be foregone. Therefore, it's not hard to understand the importance of trust to the economic growth, financial development as well as the increase in trade and investments.

There are several reasons behind this positive correlation. One possible explanation is that the lack of trust means that individual will have higher risk aversion leading them to invest less in the risky investment and move into the lower risk investment, e.g. bank deposits. To contrast, for people with high-level trust, they tend to have higher probability to participate in the higher risk stock market.

Besides, our another intuition is about the trust of individuals towards brokers. If there is a trust shock happening, which will make the individuals lose the trust about brokers and feel under the threat of losing their assets and then move their assets from the stock market to the relative safe banks. Because of this reason, in reality, some brokers will offer some other additional services to establish the trust of their clients. This is in accordance with the opinion of Gennaioli, Shleifer, and Vishny (2015), "money doctors" who establish trust with customers by offering "hand-holding" that are able to avoid the influence of trust reduction.

5.3 Findings from Control Variables

For control variables, wealth shows significant positive impact on both holding variables. Previous studies such as Campbell (2006) have similar results and explains the impact as fixed costs, which make it rational choice for poor households to stay outside.

However, Table 5 shows coefficients become insignificant when it comes to variables about stock share. A potential explanation is that wealth effect can hardly stimulate households to hold more share of risky asset after reaching a specific fraction. This fraction can be to some extent connected to the optimal faction.

Further, considering the negative coefficients of squared Ln(total asset), we may conclude there is a hump-shaped effect in Chinese stock participants. This means that middles seem to prefer stock investment while the richer households do not. This is in accordance with Gentry and Hubbard (2004). A possible reason is private business. As Heaton and Lucas (2000) emphasize that private business assets substitute for public equity in the portfolios of some wealthy households. Thus, private business assets can explain much of the nonparticipation in public equity markets by richest households.

Income also shows significance on its positive coefficients for SHOLD and SFHOLD. What is more, the stock share measures can be positively influenced by income. Different from wealth or total asset, income reflects liquid of the household asset thus may influence the holding faction in a flexible way. For squared term, there is a similar hump-shape as wealth. Both wealth and income can capture the strong tendency for the richest and highest-income households to own private businesses (Campbell, 2006).

Family size negatively influences the participation, which is the expected results. The size of family largely depends on the number of kids in a family and thus reflect risk aversion attitude for the household (Campbell, 2006).

Age is significant at the 1% level. The regression suggests that the probability of market participation increases with age, with a calculated marginal increase in probability of 0.1% for each additional life year. For this result, risk attitude can be an explanation. As life-cycle investment hypothesis states, risk tolerance increases with age and leads to higher incentive to hold stocks. However, the squared term is quite close to zero, which is inconsistent with some other empirical findings. (Yao et al., 2004; Wang & Hanna, 1998; Xiao et al., 2001; Morin & Suarez, 1983). This result is probably attributed to variability in omitted variables, such as employment rate, longevity and culture, among different provinces.

The gender variable (male as household master) is inconsistent with our expectation since the coefficient is negative. The stock market participation rate has also been shown to have clear differences between genders. For instance, Bajtelsmit, Jianakoplos and Bernasek (1996) show that women have lower level of risk tolerance than men, which implies they are less likely to own stocks. Further, Dreber (2012) studied the differences between genders and found out that numeracy, risk tolerance and financial literacy were all factors that explained why women participate to a lesser extent than men. Therefore, this counter-intuitive finding requires further researches to make reasonable interpretations.

Both of the education dummy show positive coefficient with high significance. As Cole and Shastry (2009) states, well educated people are more likely to understand the mechanisms of the financial system, such as the relationship between risk reward and in addition to that also more likely to be able to perform trades. Thereby, it is more likely for household with well-educated head to participate in the stock market.

6 Conclusion

This study has investigated the effects of behavioral finances on stock market participation based on the situation in China. Availability and trust are selected as our target behavioral variables. Besides, some other influential factors, e.g. household wealth, income, family size, age, gender, and education are also included in the study as control variables. The main contribution is that the study applies an adjusted availability measure to describe the availability of local financial service and investigate trust variable in the meantime. Those two variables are combined to explain the participation problem on external and internal dimensions. The other contribution is regarding the selection of data. To date, this is the first article to connect CFPS with data of securities company branch and apply it to behavioral finance study.

With regard to availability, it is found that availability has a significantly positive effect on stock market participation, which is accordance with the previous studies. As discussed, this effect can be explained from the perspective of salience theory. When branch networks become more available, the salience effect leads households to overweight stock investment compared to other investment choices. Further, compared to availability, regional economic advance is not a significant determinant for participation puzzle. Therefore, building securities company branch network might be a solution to stimulate the stock market participation in relatively undeveloped regions.

When it comes to trust, the findings show that the level of trust can be considered as an explanation regarding the variation of individual participation in the stock market, even though the positive impact is weaker than the previous found. One possible explanation is that the lack of trust implies that the individual has higher risk aversion, leading them to invest less in the risky investment. The second intuition is regarding the trust towards brokers. When a trust shock happens, individuals tend to lose confidence about brokers due to feeling under the threat of losing their assets and then move their assets from the stock market to the relative safe banks.

Furthermore, among control variables, a surprising finding is that females are more likely to participate in the stock market as family head. This is inconsistent with most previous articles in this field. Hence, further studies are required to find more explanations on this topic

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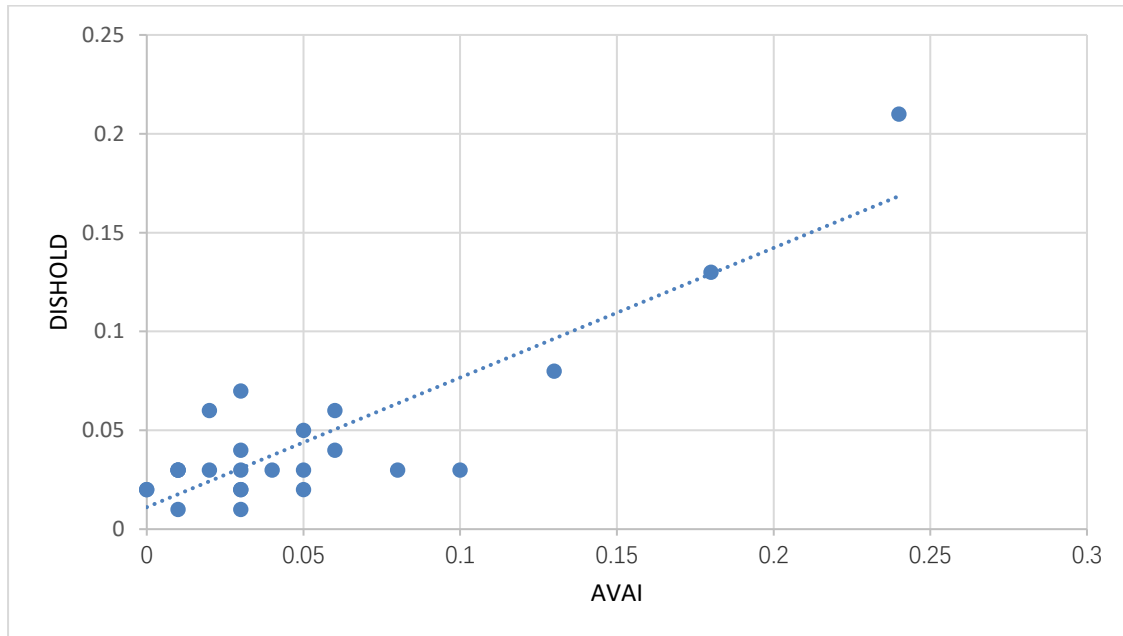
Yin, Wu, & Gan. 2015. 'Financial availability, financial market participation and household portfolio choice ', Economic Research Journal, 50(3), 87-99.

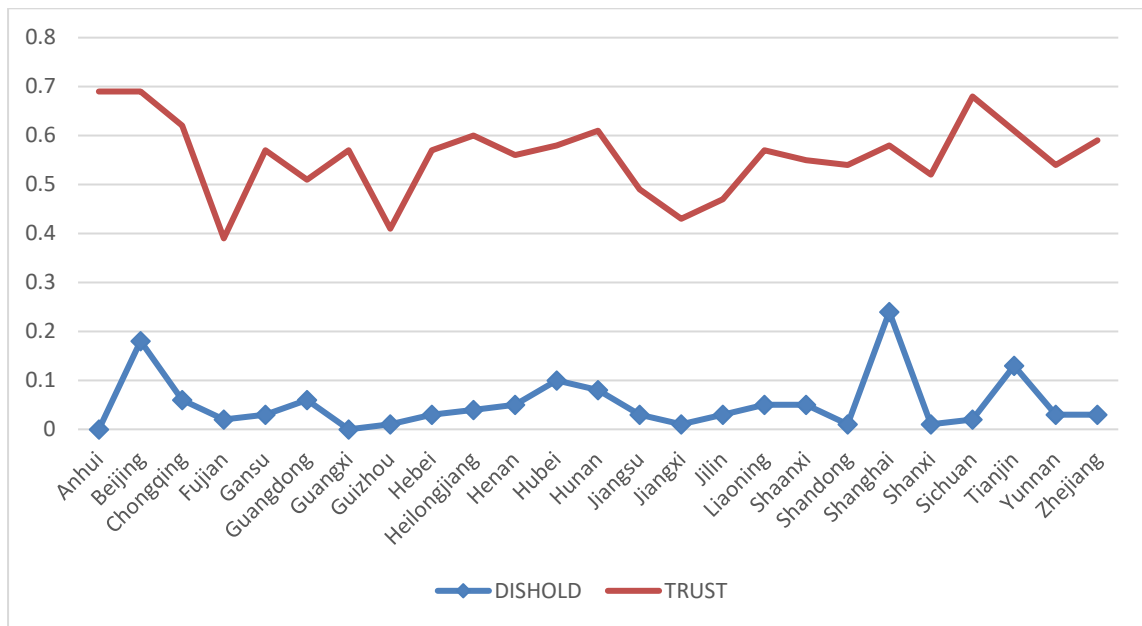# Appendix A: Analysis Figures for Data

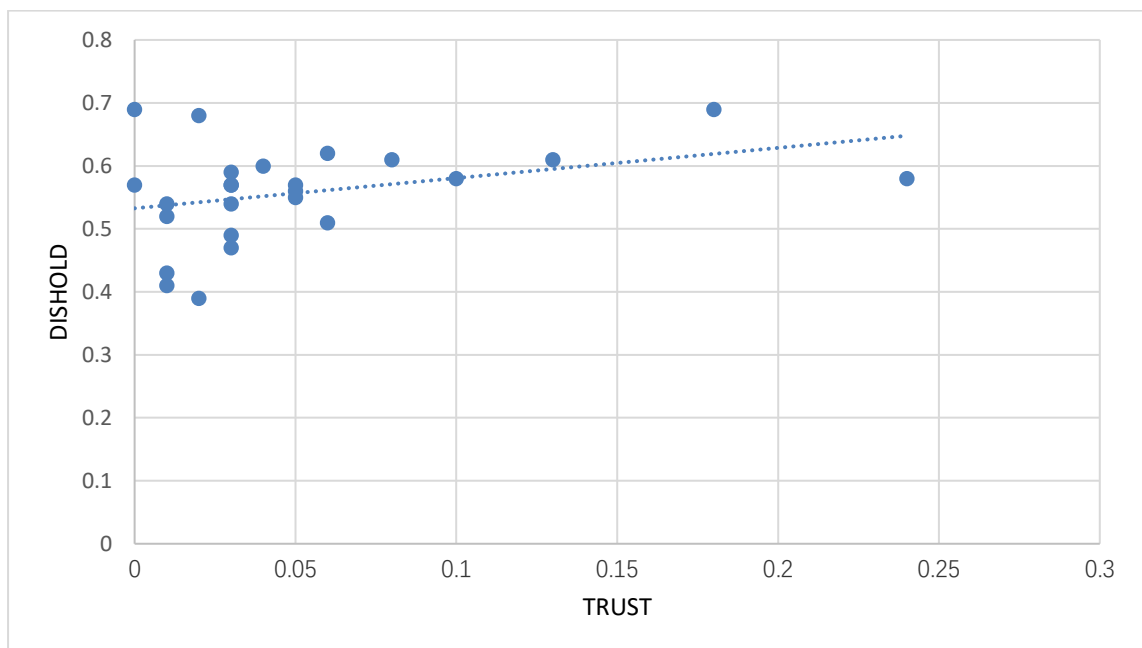[Figure 7] Direct and indirect Stockholding and Availability
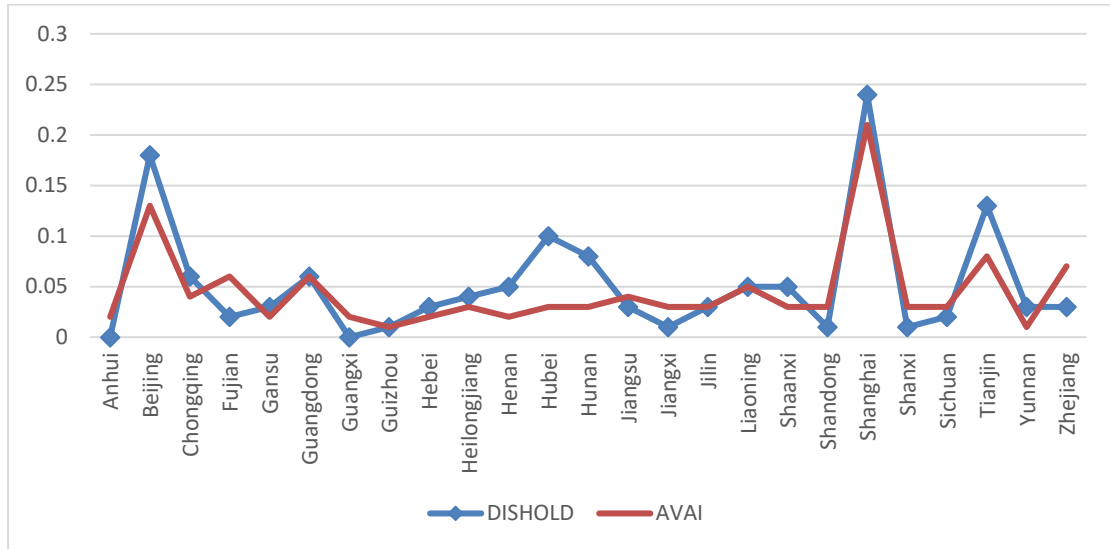
[Figure 8] Direct and Indirect Stockholding and Availability (Scatter)
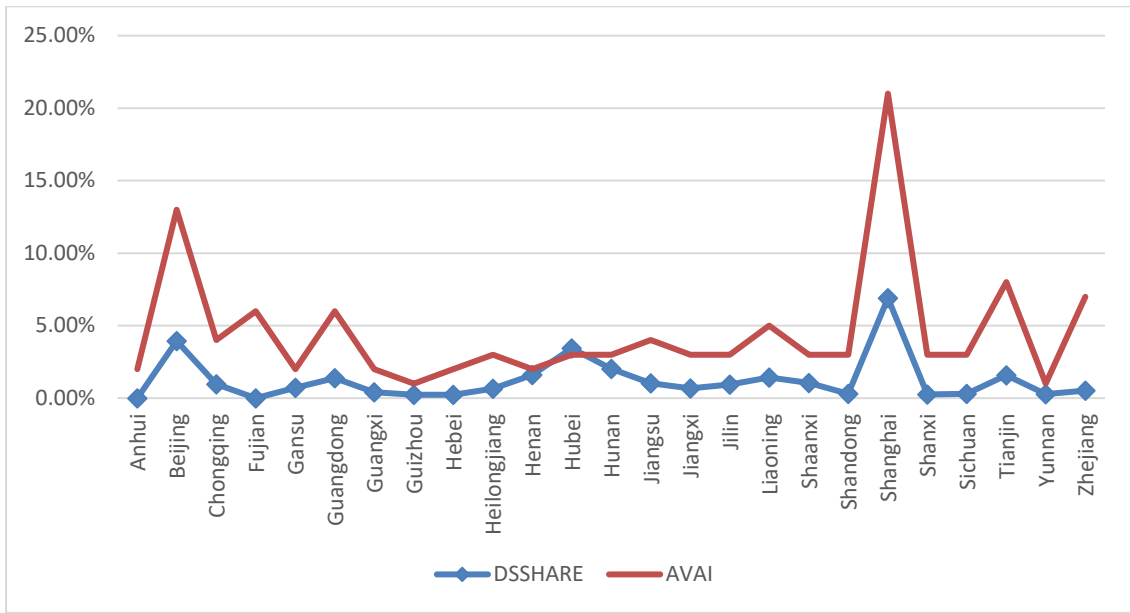
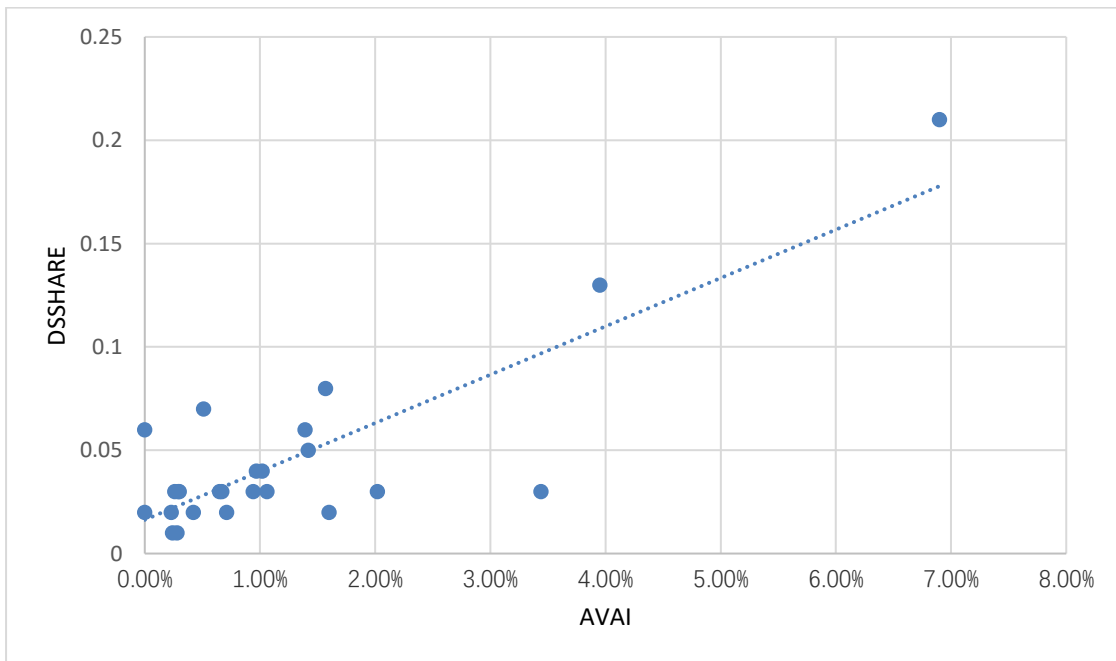[Figure 9] Direct and Indirect Stockholding and Trust

[Figure 10] Direct and Indirect Stockholding and Trust (Scatter)

[Figure 11] Direct Stock Share and Availability

[Figure 12] Direct Stock Share and Availability (Scatter)

[Figure 13] Direct Stock Share and Trust

[Figure 14] Direct Stock Share and Trust (Scatter)

[Figure 15] Direct and Indirect Stock Share and Availability

[Figure 16] Direct and Indirect Stock Share and Availability (Scatter)

[Figure 17] Direct and Indirect Stock Share and Trust

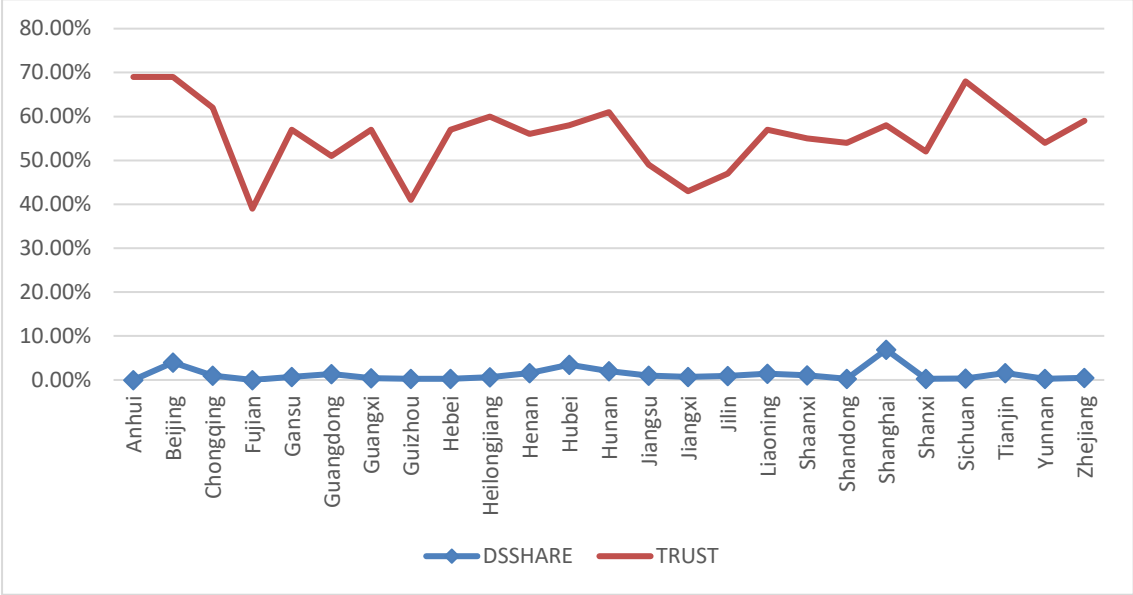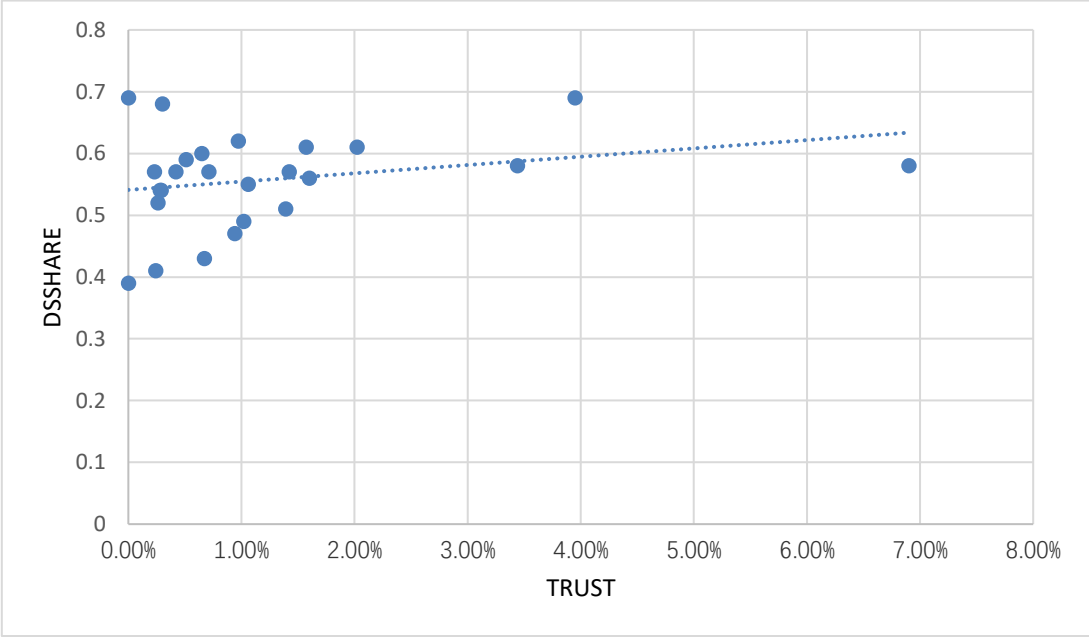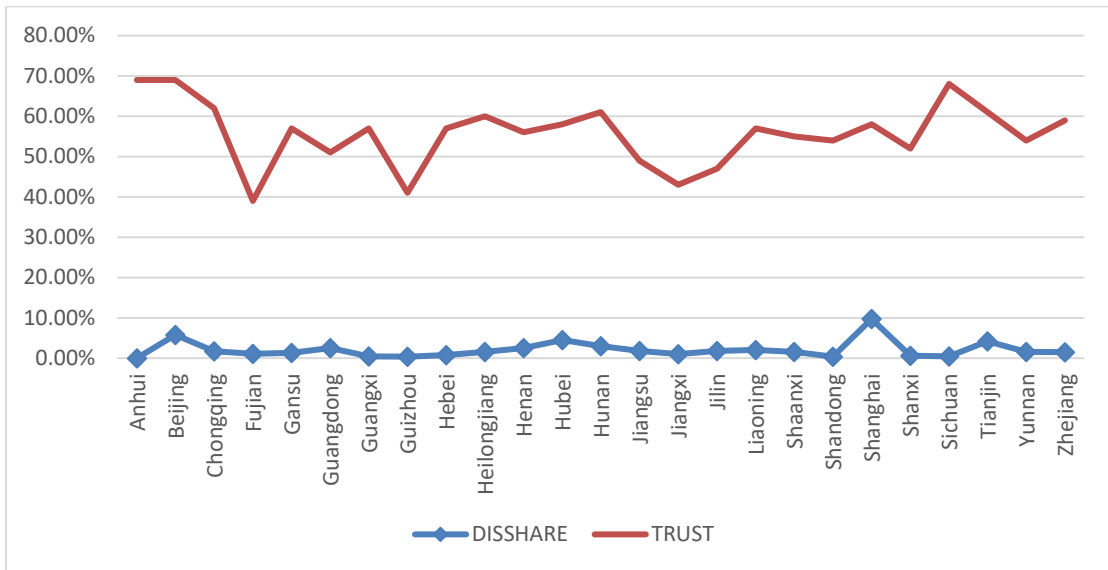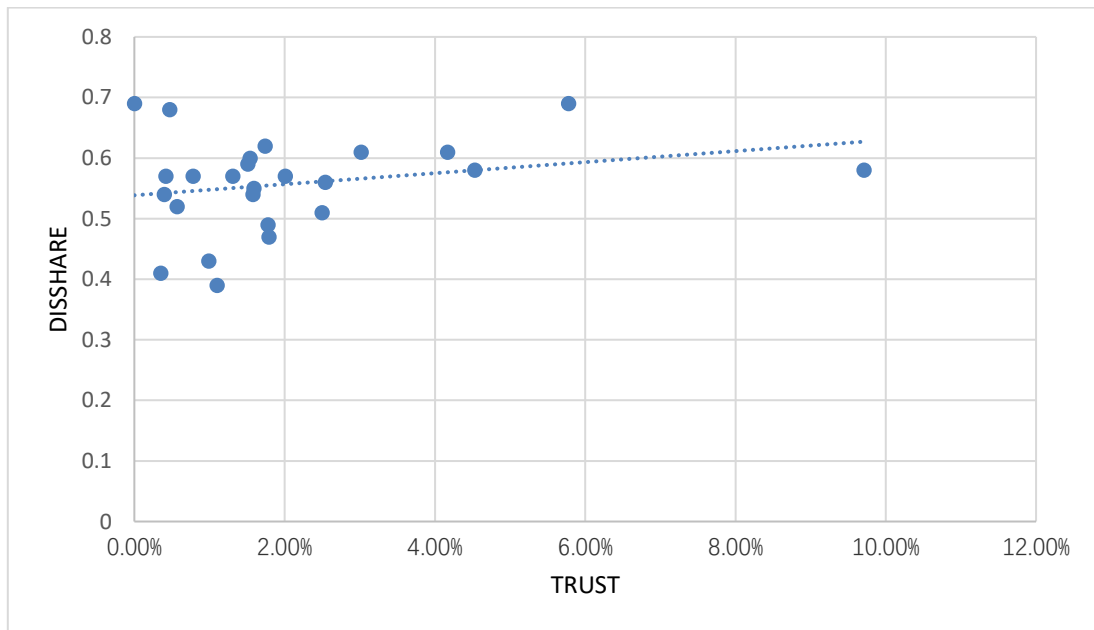[Figure 18] Direct and Indirect Stock Share and Trust (Scatter)

Appendix B: Results from OLS

[Table 6] OLS Results

	DSHOLD	DISHOLD	DSSHARE	DISSHARE
	Coefficient	Coefficient	Coefficient	Coefficient
C	0.582***	0.709***	0.155***	0.225***
	(0.072)	(0.086)	(0.036)	(0.046)
UNEX.AVAI	0.562**	0.739***	0.239***	0.302***
	(0.050)	(0.059)	(0.025)	(0.031)
TRUST	0.008***	0.01**	0.005***	0.006***
	(0.003)	(0.004)	(0.002)	(0.002)
LNTA	-0.116***	-0.152***	-0.038***	-0.055***
	(0.011)	(0.013)	(0.005)	(0.007)
LNTA2	0.006***	0.008***	0.002***	0.003***
	(0.000)	(0.001)	(0.000)	(0.000)
LNIN	-0.03***	-0.033***	-0.004	-0.007
	(0.009)	(0.011)	(0.005)	(0.006)
LNIN2	0.002***	0.002***	0.000	0.001
	(0.001)	(0.001)	(0.000)	(0.000)
FAMILY	-0.005***	-0.006***	-0.002***	-0.003***
	(0.001)	(0.001)	(0.000)	(0.001)
AGE	0.003***	0.005***	0.001***	0.002***
	(0.001)	(0.001)	(0.000)	(0.000)
AGE2	0.000**	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
GENDER	-0.007***	-0.017***	-0.004**	-0.010***
	(0.003)	(0.004)	(0.002)	(0.002)
EDU1	0.046***	0.071***	0.022***	0.035***
	(0.005)	(0.006)	(0.002)	(0.003)
EDU2	0.107***	0.167***	0.040***	0.062***
	(0.007)	(0.008)	(0.003)	(0.004)
EX.AVAI	0.019***	0.023***	0.008***	0.009***
	(0.004)	(0.005)	(0.002)	(0.003)
R-squared	0.135	0.178	0.082	0.108
Log L.	4099.629	1987.782	12481.22	9675.23
N	12115	12115	12115	12115

Appendix C: Correlation Table

[Table 7] Correlation Table

	DSHOLD	DISHOLD	DSSHARE	DISSHARE	AVAI	TRUST	LNTA	LNTA2	LNIN	LNIN2	FAMILY	AGE	AGE2	GENDER	EI
DSHOLD	1.00														
DISHOLD	0.80	1.00													
DSSHARE	0.75	0.60	1.00												
DISSHARE	0.65	0.77	0.82	1.00											
AVAI	0.22	0.24	0.18	0.19	1.00										
TRUST	0.06	0.06	0.05	0.06	0.02	1.00									
LNTA	0.24	0.28	0.18	0.22	0.33	0.06	1.00								
LNTA2	0.26	0.30	0.20	0.23	0.36	0.06	0.99	1.00							
LNIN	0.16	0.18	0.11	0.13	0.18	0.05	0.40	0.41	1.00						
LNIN2	0.17	0.19	0.12	0.14	0.19	0.06	0.42	0.43	0.99	1.00					
FAMILY	-0.06	-0.06	-0.05	-0.05	-0.14	-0.03	0.12	0.11	0.27	0.27	1.00				
AGE	-0.02	-0.02	0.00	0.00	0.10	-0.02	-0.09	-0.08	-0.16	-0.16	-0.14	1.00			
AGE2	-0.02	-0.02	0.00	-0.01	0.11	-0.01	-0.10	-0.09	-0.18	-0.18	-0.15	0.99	1.00		
GENDER	-0.03	-0.04	-0.02	-0.04	-0.04	0.04	-0.02	-0.02	0.00	-0.01	0.05	0.09	0.09	1.00	
EDU1	0.11	0.12	0.10	0.12	0.06	0.06	0.12	0.12	0.11	0.11	-0.04	-0.08	-0.08	0.01	
EDU2	0.21	0.25	0.15	0.18	0.10	0.11	0.21	0.23	0.18	0.20	-0.10	-0.18	-0.16	0.00	-
LNGDP	0.15	0.17	0.12	0.13	0.76	0.01	0.27	0.30	0.14	0.15	-0.20	0.10	0.11	-0.08	