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# Household Portfolio Allocation and Stock Market Impressions: Evidence from Japan Households

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# Household Portfolio Allocation and Stock Market Impressions: Evidence from Japan households*

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**Abstract**

This study investigates the relationship between individual impressions of financial markets and household portfolio decisions in Japan. We analyse data from the Keio Household Panel Survey (KHPS) to examine how impressions about financial markets influence current and planned asset holdings. Initially, our findings reveal statistically and economically significant relationships between distinct impressions and current asset allocations and asset accumulation. The results relating to impressions about profitability and uncertainty remain robust when employing an instrumental variable approach that utilises historical impressions to control for potential endogeneity. Additionally, we explore the influence of current impressions on long-term financial planning, demonstrating their potential importance in shaping future planned asset allocation. These findings suggest that addressing misconceptions and influencing impressions regarding financial markets could potentially improve household financial well-being.

**Keywords**: Asset allocation; Fractional models; Impressions about the stock market.
**JEL Classification**:A13; C33; C35; D14; G11.

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# 1 Introduction

The main feature of the stock market that attracts households is the belief that the stock market will yield a higher return than risk free investments. Without this belief, households will choose not to participate in the stock market even in the absence of any participation costs. These beliefs are based on households' impressions about different dimensions of stock market functions, such as profitability, fairness, efficiency, and prudential supervision (trust). There is growing evidence that households' impressions regarding the functioning of the stock market influence a range of economic and financial outcomes both at the aggregate and household level, (see, for example, Guiso, Sapienza, & Zingales, 2008; Delis & Mylonidis, 2015; Georgarakos & Pasini, 2011; Bucciol, Cavasso, & Zarri, 2016; Balloch, Nicolae, & Philip, 2015; Fisch & Seligman, 2021).

This paper provides a novel exploration of subjective impressions about the stock market on current and future financial behaviours. It provides a deeper understanding of how Japanese households' impressions about the functioning of the stock market influence a range of financial behaviours; namely, the decision to hold risky assets, the proportion of risky assets in their financial portfolio, and the overall level of financial assets. We find that the households' impressions of the functioning of the stock market, specifically, impressions about uncertainty, profits and legality, impact households' financial outcomes. To explore the robustness of our results and account for potential endogeneity concerns, we exploit information related to when these impressions were formed in an instrumental variables (IV) approach. In this approach, we find that the results relating to impressions about profitability and uncertainty persist. Finally, we document the impact of these impressions on future planned asset holdings. Overall, our results suggest that individual impressions have a significant impact on both current and planned financial decisions, highlighting the potential importance of subjective impressions on financial well-being.

The case of Japan is particularly interesting to examine as the structure of household financial portfolios in Japan is significantly different to similarly developed OECD countries, especially the share of risky financial assets, defined as the ratio of securities to total financial wealth. Japan's ageing population, as a result of high life expectancy and a low fertility rate, is a distinct feature that makes Japan different from other similarly developed OECD countries. This demographic structure would suggest that Japanese households should find stock ownership more attractive as they will have a higher incentive for wealth accumulation. In contrast, the Bank of Japan (2017b) shows that the share of equity held by Japanese households was on average 10.0% in 2017 in comparison to 18.0% in the EU and 36.0% in the U.S..[1] Safe assets in the form of cash and deposits, however, make up

[1] This conservative investment approach by Japanese households is not recent, the Bank of Japan (2017a) shows that the share of risky assets in Japanese household financial portfolios has been hovering around 10.0% since 2004 and it was even lower (around 7.0%) at the end of 1990s as a result of the collapse of the stock market capitalisation in the early 1990s.

the vast majority of Japanese household financial portfolios, which have been on average above 50.0% since 1990.[2]

In 1996 the Japanese government started a deregulation process, known as the Japanese Big Bang, which replicates the U.S. and the UK Big Bang experience. One of the aims of the Japanese Big Bang was to move household financial assets held as private bank deposits to their potential use as investments in the capital market.[3] However, the observed level of risky asset holdings shows that no substantial progress has been achieved through financial deregulation alone to the issue of sub-optimal use of household financial assets and suggests that other important factors are contributing to the conservative investment approach by Japanese households.

Despite the importance of evaluating the impact of households' impressions on their financial portfolio decisions, there are no studies to our knowledge that explore the role of these potentially important factors in Japan. A limited literature examines the role of households' trust in the functioning of the stock market and on financial behaviours. Furthermore, this literature generally only considers the trust dimension of these beliefs and has focused the U.S. or Europe, see, for example, Guiso et al. (2008), Delis and Mylonidis (2015), Georgarakos and Pasini (2011), Balloch et al. (2015), Fisch and Seligman (2021), Hanspal, Weber, and Wohlfart (2020) and Bucciol et al. (2016). The literature relating to Japanese households' cautious investment behaviour in general is sparse, see, for example, Alzuabi, Brown, Gray, Harris, and Spencer (2022), Iwaisako, Ono, Saito, and Tokuda (2016), Iwaisako (2009), Aoki, Michaelides, and Nikolov (2016), Kinari (2007), Nakagawa and Shimizu (2000) and Ito, Takizuka, Fujiwara, et al. (2017), and these studies provide a wide range of explanations relating of the low risky asset share in the financial portfolios of Japanese households.

This paper will fill these gaps in the existing literature by incorporating five different dimensions of households' direct impressions relating to the functioning of the stock market, as opposed to general indirect measures, using a variety of modelling approaches. Measures of the impressions about the institutions that facilitate holdings of risky assets are arguably far more important than relying on a generalized measure for this area of analysis.[4] More specifically, the contribution of this paper to the existing literature is fourfold. Firstly, we are aware of no other empirical study for Japan that has analysed the effects of households' impressions of the functioning of the stock market on current holdings of risky assets and the current level of financial wealth. Secondly, the paper highlights the importance of using direct measures of impressions of the stock market, rather than relying on a general

[2]The rest of the portfolio consists, on average, of 5.0% investment trust, 30.0% insurance and pension and 5.0% others. "others" is defined by Bank of Japan (2017b) as the residual which is the remaining after deducting these categories from total financial assets.

[3]Bhamra and Uppal (2019) show that under-diversification not only affects the asset-allocation and inter-temporal consumption decisions of households, upon aggregation, it can also distort aggregate growth, which in turn amplifies social welfare losses.

[4]Most of the studies cited above focus on the trust dimension and use a generalised measure as a proxy, with the exception of Balloch et al. (2015) who used a measure which is specific to household trust in the stock market and Guiso et al. (2008) who proxy trust in the stock market with individuals' trust in bank officials and advisers.

measure, which is the case in most papers in the existing literature. Thirdly, we address the potential concern for reverse causality by instrumenting current impressions using the historical formation of the impressions. That is, we exploit information contained in the survey about individuals' first impressions of specific aspects of the stock market, along with information on when these beliefs were approximately formed. Finally, we explore further the impact of individuals' impressions on future holdings of different financial assets.

The results of this paper suggest that the determinants of risky asset holding in Japan diverge from the existing literature, which predominantly considers the U.S. and Europe. Furthermore, the analysis indicates that the individuals' impressions of different dimensions of the stock market have statistically and economically significant associations with current risky assets holdings and the decisions to hold certain financial assets in the future. The results highlight that impressions are potentially important determinants of a range of financial outcomes. This is potentially important from a policy perspective as these measures are malleable and could be influenced to promote improved financial well-being.

This paper is structured as follows; Section 2 reviews the current literature and Section 3 provides a discussion of the data. Section 4 describes the methodologies employed in this paper, while Section 5 presents the results related to the determinants of the three outcome variables. Section 6 explores the robustness of the results to an IV approach. Section 7 discusses the long term impact of beliefs on an individual's planned future holdings of a number of financial assets and finally, Section 8 concludes the paper.

## 2 Related Literature

An important dimension of an individual's impression about the functioning of the stock market, which has recently received academic attention, is trust. Existing empirical evidence shows that aggregated general public trust has a significant positive impact on financial outcomes, long term growth and development, (see, Knack & Keefer, 1997; Zak & Knack, 2001; Horváth, 2013; Algan & Cahuc, 2010). Trust at the individual level has also been identified to influence individuals' decisions in a number of aspects. For example, individuals with higher levels of trust have lower likelihoods of default in household debt and higher net worth (see, Jiang & Lim, 2018), they will have higher demand for insurance products (see, De Meza, Irlenbusch, & Reyniers, 2010; Cole et al., 2013; Delis & Mylonidis, 2015), are more likely to use peer platform markets (see, van der Cruijsen, Doll, & van Hoenselaar, 2019) and are more likely to hold a bank account or switch to a new one (Ampudia & Palligkinis, 2018).[5]

[5]See van der Cruijsen, de Haan, and Roerink (2023) for an excellent survey of the literature related to individual trust in financial institutions.

The role of trust in explaining the non-participation puzzle has also been examined in the literature. Using data on Dutch households, Guiso et al. (2008) findings show that the probability of direct participation in the stock market increases by 6.5 percentage points for individuals who do trust others, and those who do participate will on average have a 3.4 percentage points higher share in stocks.[6] Moreover, Guiso et al. (2008) use the Italian Bank customers survey to construct a measure of trust in the institutions that facilitate stock market participation rather than the generalized measure of trust. The findings also show that trust has a positive impact on the participation rate and the level of participation. The cross country analysis of Guiso et al. (2008) also shows that stock market participation is low in countries where trust levels are low. Guiso et al. (2008, p. 2560) argue that *"cultural differences in trust appear to be a new additional explanation for cross-country differences in stock market development"*. We aim to contribute to this discussion by exploring the context of Japan and by exploring impressions relating to financial institutions, as opposed to general trust.

In a related literature, Balloch et al. (2015) constructed a direct measure of trust by averaging responses to three questions about households' level of trust in the stock market, trust in stockbrokers and trust in investment advisers using the American Life Panel (ALP) surveys. Similar to Guiso et al. (2008) they also find that trust is associated with the probability of participation and the share of investment in stocks.[7]

Georgarakos and Pasini (2011) also analysed the joint importance of trust and sociability on households' financial decisions using data from the Survey on Health, Ageing and Retirement in Europe. They found that both mistrust and sociability affect stock market participation through distinct channels. Mistrust will affect participation negatively as it dissolves the perceived risk premium, whereas sociability will enhance participation since it lowers the costs associated with it through cheaper information sharing. As well as confirming the importance of trust for the decision to participate in stock markets, Delis and Mylonidis (2015) also find that happiness works in the opposite direction. Specifically, the negative effect of happiness is about 6% higher compared to the positive equivalent of trust on the ownership of risky financial assets.

Fisch and Seligman (2021) also find that trust and financial literacy are positively related to financial market participation, to the use of specific products, and to preferences for the use of intermediaries. However, while trust is uniformly correlated with engagement, financial literacy has a u-shaped relationship with market participation, with increases in financial literacy first associated with reductions and subsequently with increases in the levels of participation. Bucciol et al. (2016)

[6] General trust is measured by the response to "Generally speaking, would you say that most people can be trusted or that you have to be very careful in dealing with people?"

[7] Their results also indicate that stock market literate households are more likely to participate in stocks and invest a higher proportion of their wealth in the stock market. Furthermore, they argue that sociability does not play an important role for participation once stock market literacy is accounted for.

find that trust can compensate for a lack of risk tolerance, as their findings show that trust in the presence of risk aversion is associated with more frequent investment in risky assets.

In a recent line of research, van der Cruijsen, de Haan, and Roerink (2021) examine the role financial literacy play, and other socio-economic and demographic variables, in the level of broad-scope trust (trust in financial institutions in general) and narrow-scope trust (trust in one's own financial institution). They find that financially literate consumers are more likely to trust banks, insurance companies and pension funds.

Whilst there are no studies which explore the role of beliefs in financial markets in Japanese households' financial decisions and its implications for financial behaviours, there exists a number of studies that provide a general overview of Japanese household investment behaviour, as well as exploring the determinants of risky asset holdings. For example, Nakagawa and Shimizu (2000) show that the decline in the rate of return on stocks and the high volatility attached to this return explain the decline in a household's risky asset holdings. Iwaisako (2009) argues that the high land prices in Japan and the higher average down payments, compared to the U.S., leave Japanese households with a higher share of real estate in total wealth and this explains why Japanese households start to hold risky assets at a much later stage of life compared to U.S. households. Ito et al. (2017) argue that the major difference in the decision to participate in the stock market between Japan and the U.S. is explained by financial literacy.

In summary, this paper contributes to the existing literature by exploring impressions about the stock market, on a range of financial behaviours, in Japan. We are able to distinguish between current financial behaviours and planned future behaviours, and highlight the potential long term impact of impressions on the households financial position. Further, we exploit novel information available in the survey to account for endogeneity concerns in these relationships.

## 3 Data

The data analysed in this paper is drawn from the Keio Household Panel Survey (KHPS).[8] The KHPS is one of the most comprehensive longitudinal surveys of households in Japan and it has been conducted annually since 2004. Respondents were selected by stratified two-stage random sampling of people aged between 20 and 69, male and female.[9] The KHPS covers all eight regions of Japan and the sample size for each region is determined according to the share of its population in the

[8] The KHPS is available from the Panel Data Research Centre at Keio University.

[9] For more information about the sampling methods used, see: https://www.pdrc.keio.ac.jp/en/paneldata/datasets/jhpskhps/.

National Residents Register.[10] The KHPS provides detailed information about respondents' social and demographic characteristics, and also information regarding their financial asset holdings.

In waves 9 to 13 (2012-2016), questions related to respondent's impressions about the functioning of the stock market were collected. Therefore, this paper analyses data covering these waves which contain information related to 2,981 households, and 12,182 household/year observations. Information is collected for the respondent and his/her spouse in the case of married couples. However, as the analysis in this paper is of household asset holdings, the household is the unit of analysis rather than individual respondents. Specifically, demographic characteristics and questions related to the beliefs about the stock market are related to the head of the household, whereas financial information are those reported at the household level.

### 3.1 Dependent Variables

KHPS respondents are asked to self-report the value of the household's financial assets held at the time of the interview in two distinct categories, namely 'deposits' and 'securities'. The items which are included in the 'deposits' category are as follows: "Postal savings certificates; national and regional (for example, Shinkin) bank holdings of time deposits, installment savings and ordinary deposits; company deposits; gold investment and savings accounts; and wealth held in the form of medium-term government bond funds". The financial assets in this category are relatively risk free. The items that are included in the 'securities' category are considered to be of higher risk and include: "Shares (reported at market value); bonds (at par value); stock investment trusts (market value); corporate and public bond investment trusts (market value); and loans in trust and money in trust (par value)".

This paper explores three outcome variables: a dummy variable which captures the propensity to hold risky assets (securities); the proportion of risky assets in households' financial portfolios, defined as the ratio of securities to total financial wealth; and the level of financial wealth, defined as the natural log transformations of securities plus deposits. Table 1 provides summary statistics for these variables.[11] The average holdings of risky assets in our sample is 7% of total assets and 23% in our sample holed positive share of risky assets, which is much lower than U.S. and European household, see Bank of Japan (2017b).[12] In terms of total financial wealth, approximately 21% of respondents report having no financial wealth. This is not surprising given that the saving rate in Japan was the second highest (22.8%) among OECD countries in 1975, with this rate dropping to 2.4% in 2015. Similar

[10] The recovery rates for the KHPS for the years 2012-2016 are: 94.2%, 91.7%, 92.6%, 93.8%, 94.0%. These recovery rates are considered a good indication to the reliability of the dataset.

[11] All variables are denominated in Japanese yen and the values are reported in real terms, having been adjusted using the 2016 price level. Asset values such as land and housing are not included in the total financial wealth measure used to calculate the risky assets' share. Such assets are accounted for using net worth in the modelling approach.

[12] In the Appendix, Figure A.1 Panel A shows the distribution of the proportion of risky assets which display a high percentage of zero holdings in our sample and Panel B shows the distribution conditional on holding risky assets, which also indicates that those who do hold risky assets hold small proportions.

figures are found in other surveys for Japan such as the Financial Literacy Survey, which reports that the percentage of households who do not have any financial assets is 18%, 14%, and 13%, in 2011, 2016, and 2019, respectively.[13] Table 4 reports these statistics by broad age categories, confirming the low share of both assets held by young respondents.

The first part of the paper explores how each dimension of individuals' beliefs in the stock market is associated with the current financial outcomes. We subsequently explore whether these beliefs have a long term impact on the financial behaviour of the individual, by exploring planned financial allocations. Therefore, the final section of this paper explores the long term impact of these beliefs on an individual's future decisions of holding different types of assets. Specifically, the KHPS asks respondents the following questions: *"Which financial assets would you like to purchase in preparation for your life twenty years from now? Or, which financial assets have you purchased for that purpose? Please circle all that apply. Time deposits; government bonds; stocks; foreign-denominated financial products; and/or investment trust."* Table 2 shows the summary statistics related to these variables. The table confirms that safe assets in the form of cash and deposits make up the vast majority of Japanese household financial portfolios, which is in line with the discussion presented in the introduction. Table 4 reports the statistics related to these variables by broad age categories, which shows that responses do not differ across ages. This is expected as the aspiration of holding a financial portfolio at a retirement age should be the same regardless of the current age of the respondent.

### 3.2 Independent Variables

The main contribution of this paper is to explore the impact of an individual's impressions about specific dimensions of the stock market on the current holdings of risky assets; the current level of total financial assets; and the probability of holding different financial assets in the future. Generally, existing studies examine only one dimension of individuals' perceived reliability of the stock market, which is trust. These papers proxy the level of individual trust in financial institutions using a general measure of trust. For example, the World Values Survey captures general trust by the responses to "Generally speaking, would you say that most people can be trusted or that you have to be very careful in dealing with people?". This is employed in the literature of trust by a number of studies, (see, Guiso, Sapienza, & Zingales, 2009; Delis & Mylonidis, 2015; Bucciol et al., 2016). On the other hand Balloch et al. (2015) use a measure of trust which is specific to household trust in the stock market; Fisch and Seligman (2021) use generalised and context-specific trust questions; and Guiso et al. (2008) proxy trust in the stock market with individuals' trust in bank officials and advisers.

This paper contributes to the literature by using five disaggregated measures of individual's impressions of the stock market, which collectively can be seen as an indicator of households' impressions

[13] The average level of household total financial wealth reported in the survey is approximately 9.6 million yen.

of the overall reliability of the stock market. This is similar to the measures used by Balloch et al. (2015) and Fisch and Seligman (2021). The statements used to construct the impressions measures are:

*"Please circle the answer that best applies to you for each of the following statements regarding your impression about the stock market. (0) Disagree (1) Somewhat disagree (2) Can't say either way (3) Somewhat agree (4) Agree:*

*1- Profits can not be made with certainty.*

*2- Significant losses are possible.*

*3- Illegal activities such as insider trading are widespread.*

*4- No much progress has been made in terms of disclosure of information on corporate performance.*

*5- Securities firms inappropriately favor large investors, such as large corporations, rather than general investors."*

The first two statements focus on the individuals' impressions about the profitability and riskiness of the stock market. The risk and return trade-off is crucial for households in deciding whether to participate in the stock market or not. The last three statements capture different dimensions of households' trust in the stock market. In particular, the "illegal activities" statement captures the fairness and the quality of investor protection whereas the "information disclosure" statement captures stock market efficiency. Finally, the statement regarding the behaviour of securities firms captures stock market prudential supervision. Table 3 shows the distribution of these variables, where it is clear that the majority of respondents agree with the statements concerning the profitability and riskiness of the stock market. However, most of the respondents could not decide about the statements related to the other three trust dimensions with a higher proportion of respondents agreeing with these statements rather than disagreeing. In all of the subsequent analyses, we collapse our variables to a binary response, that is, responses of 'disagree', 'somewhat disagree' and 'can't say either' way categories, are merged into one category and form the omitted outcome, whilst agree and somewhat agree are coded to take a value of one.[14] The statistics related to these variables by broad age categories are reported in Table 4, which shows that younger respondents are less likely to agree with statements capturing different dimensions of households' trust in the stock market, but for the first two statements, the variation is small across the age categories.

In line with the existing literature this paper uses the standard demographic and socio-economic characteristics that have been identified to influence stock market participation decisions of households, (see, for example, Haliassos & Bertaut, 1995; Campbell, 2006; Cardak & Wilkins, 2009; Guiso &

[14] A number of studies merge adjacent categories with small percentages, (see, for example, Bucciol et al., 2016)

Sodini, 2013). These variables are defined along with the associated summary statistics in Table 5.

# 4 Empirical Strategy

Each of the three different outcome variables examined in this paper has an important feature that requires a specific modelling approach. Generally, we estimate the following equation:

$$\text{Household Financial Decisions}_i = \boldsymbol{\beta}_1 \text{ Impressions}_i + \boldsymbol{\beta}_2 X_i + \epsilon_i \,, \tag{1}$$

where 'household financial decisions' is one of the three variables; the share of risky assets, the propensity to hold risky assets, and the level of financial assets. 'Impressions' capture responses to the questions outlined above. In our specifications, we include these statements individually initially and then as a group. Consequently, the coefficient of interest is $\beta_1$, which gives the impact of household's impressions of the stock market. $X_i$ is the vector of observable household control variables described in the previous section; $\epsilon_i$ is a white noise error term.

The share of holding risky assets is defined on the close interval $y_{it} \in [0, 1]$ with a significant portion of the sample observations falls at one of the extremes, therefore, we use the Fractional Response Model (FRM), see Papke and Wooldridge (1996) for further details and full formulations of the FRM model.[15] The propensity to hold risky assets, which is a dummy variable, will be examined using the probit model, while the level of financial wealth will be modelled using a tobit model, which are commonly used in the household finance literature.[16] To control for the unobserved household heterogeneity ($a_i$) the standard errors are clustered at the household level.[17]

# 5 Results

## 5.1 Baseline specification

Prior to discussing the impact of households' impressions of the stock market, we discuss the demographic and socio-economic determinants of our three dependent variables. The average marginal effects of the FRM, probit and tobit models, corresponding to the share of risky assets held, the decision to hold risky assets and the level of financial assets are presented in Table 6.[18] In line with existing literature, Table 6 shows that being male has a positive and statistically significant effect on the

[15] Using linear models will not account for the fact that bounded variables are subject to floor and ceiling effects (Gallani & Krishnan, 2017).

[16] Full formulation of these models can be found in Greene (2012) and Wooldridge (2015).

[17] For a robustness check, a random effect specifications were also used for the three models, the results of these checks are reported in the appendix.

[18] These controls are included in all subsequent tables but, for brevity, only presented in full in Table 6.

proportion and the probability of holding risky assets, however, the impact is insignificant on the level of financial assets. Being married is positively related to the level of financial assets as presented in column 3 of Table 6; a possible mechanism for this effect is that married or cohabiting households will potentially have more resources than single people, see for example Haliassos and Bertaut (1995), however, in the context of Japan, married displays a statistically insignificant association with the decision to hold risky assets and the share of risky assets.

The effects of age, employment and health status on the outcome variables examined in this paper are in line with the existing literature that explores financial behaviours in Japanese households but contradict the findings of the U.S. and European studies. In general, risky asset holdings have been documented to have a humped shaped pattern with age, reaching a peak at middle age before declining, see Ameriks and Zeldes (2004) for the U.S. and Guiso, Haliassos, and Jappelli (2002) for Europe. For Japan, however, Table 6 shows that younger respondents are less likely to hold risky assets and their level of financial assets are lower than those who are above 70. Iwaisako et al. (2016) and Iwaisako (2009) argue that the unique housing market can provide a possible explanation to this relation as high land prices in Japan and the higher average down payments compared to the U.S., force Japanese households to postpone their risky investments until a later stage of life. Table 6 shows that those who are in the category of "other" (student, housewife or retired) and those who are in part-time employment are more likely to hold risky assets than those who are employed (the omitted category), a result likely to be driven by retired individuals, see Iwaisako, Mitchell, and Piggott (2004) for similar findings. Interestingly, compared to those who reported poor health status, respondents who reported normal health status and good health hold a lower proportion of risky assets, and are less likely to hold risky assets, in their portfolio, however, health appears not to influence the level of financial assets. In accordance with predictions of the finance theory, home ownership, level of education, equivalised income, the subjective level of retirement income, and net wealth are all positively associated with the share of risky assets, the decision to hold risky assets and the level of financial assets. In summary, the results of the baseline specification are in line with the small number of studies that used Japanese data. However, the results can be seen to be only partially consistent with studies that use U.S. and European data.

### 5.2 The role of stock market impressions

This section incorporates the effects of the five dimensions of an individual's impressions about the stock market along with the baseline specifications individually, specifications (1-5), before jointly including them in one specification, specification (6), for each of the three dependent variables as shown in Table 7.[19] The consistency of the results indicates that these variables are not correlated

[19] In unreported results, factor analysis has been used to construct a factor that combines the profitability and riskiness variables and another factor that combines the effect of the trust variables. The results of these two factors, when included in the modelling

and each one captures a unique characteristic of the respondent's behaviour, therefore, the discussion in the following sections will be based on the results presented in specification (6) in Table 7.

Table 7 reveals that those who respond in the affirmative to the "profit can not be made with certainty" statement will hold a lower proportion of their financial assets in risky assets and have a lower propensity to invest in stock markets. Considering specification 6, an individual who agrees that profits can not be made with certainty, is found to hold 2.2 percentage points (pp) less in the share of risky assets and 5.1 pp less likely to hold risky assets. We hypothesise that the "profit can not be made with certainty" statement could reflect the financial risk aversion of the individual, since the focus of this statement is on uncertainty. If stock returns are uncertain and an individual is averse to risk, it will be optimal for those individuals not to participate in the stock market. Therefore, those who agree with this statement are relatively risk averse individuals as they believe that the stock market will not provide compensation for risk via a risk premium.

Interestingly, those who answered with affirmative to the "significant losses are possible" statement, have a higher probability of holding risky assets, a higher share of risky assets, and a higher level of financial assets, as presented in column 6 of Table 7. In terms of magnitude, those who believe that losses are possible, hold 1.9 pp higher share of risky assets and 6.7 pp more likely to hold risky assets. The expected effects of the riskiness statement can not be explicitly discerned from the wording of the statement. A possible explanation for this positive impact is that this statement might reflect household's experience in the stock market. Hence, households will disagree with the statement that "losses are possible" if they have limited experience in the stock market, since recent events clearly support the statement, especially in the context of the 2008 financial crisis. Alternatively, it could capture the individual's level of financial knowledge and literacy, which is consistently found to be a key determinant of financial decisions. Therefore, this positive effect can be justified given the historic performance of the Japanese stock market, hence those who agree with the statement are likely to be those who actually hold or have held stocks.

Individuals' impression of the regulation framework and fairness of the stock market in Japan has the expected impact on their decision and holdings of risky assets and the level of financial assets. Specifically, the results in Table 7 show that agreeing that "Illegal activities such as insider trading are widespread" has a strong, significant and negative impact on households' engagement with risky assets and on the level of financial assets they hold.

The results related to the "no much progress has been made in terms of disclosure of information on corporate performance" statement show a similar pattern to the statement related to the illegal activities, with the exception that it is statistically insignificant for the share of risky assets. This

approaches, are negative and statistically significant as expected.

is expected as this statement reflects an individual's belief in the efficiency and transparency of the stock market. The final statement "Securities firms inappropriately favor large investors, such as large corporations, rather than general investors" can also be argued that it reflects household's experience in the stock market. The results show that, similar to the "significant losses are possible" statement, those who agree with this statement have a higher probability of holding risky assets, a higher level of financial assets and a higher share of risky assets.

In general, these results are in line with the findings of Guiso et al. (2008), Delis and Mylonidis (2015), Georgarakos and Pasini (2011), Balloch et al. (2015) and Bucciol et al. (2016). However, most of these studies use a generalised measure of trust with the exception of Balloch et al. (2015) who used a measure of trust which is specific to household trust in the stock market and Guiso et al. (2008) who proxy trust in the stock market with individuals' trust in bank officials and advisers. This paper uses measures that directly reflect individuals' perceived impression of the functioning of the stock market, which is inline with Balloch et al. (2015) argument of using a specific and direct measure of trust. To confirm the robustness of our findings, in Table 8 we use data related to two general measures of trust, trust in government and trust in neighbours.[20] Specifically, the survey asks if the respondent supports the current administration and if he/she trusts neighbours.[21] As can be seen from the results of Table 8, trust in government is only statistically significant for the level of financial wealth regression. Table 8 confirms that direct measures of households' impressions are larger in economic magnitude and retain their statistical significance even after incorporating generalised trust measures (see panels C compared to B). These results emphasise that measures of the impression and trust in the institutions that facilitate holdings of risky assets are arguably far more important than relying on a generalized measure of trust for this area of analysis.

Guiso et al. (2008) argue that the trust measure they have used is not a proxy of other indicators, such as optimism or expectations about stock market performance, as they control for these characteristics in their model specifications. Similarly, in supporting the inclusion of a measure of trust and a measure of financial literacy, Balloch et al. (2015) argue that knowing about the market does not make the market trustworthy. Therefore, we can argue that the five statements used in this paper are a direct measure of households' beliefs in different dimensions of the functioning of the stock market. In particular, the "illegal activities" statement captures the fairness and the quality of investor protection whereas the information disclosure one captures stock market efficiency. Furthermore, the empirical results reported in specification (6) of Table 7 show that each statement remains a key determinant of the outcome variables, even after including all of the variables along with the baseline variables

[20] The trust in government variable is of particular importance as the Japanese government announced in January 2013 (at the same time wave 10 was taking place) its "three-arrows" strategy to achieve an early end to deflation and overcome economic stagnation.

[21] These two questions are only available in two waves, 2015 and 2016. Therefore, Table 8 also reports the results related to the main impression statements (see panel C of Table 8) to confirm that the results are not driven by the small sample size.

in one specification. Therefore, the results reported in this paper confirm that different dimensions of households' impressions in the stock market are a significant determinant of households' financial decisions, and the effects do not diminish across the modelling approaches even after the inclusion of the generalised trust, which is typically smaller in economic magnitude than aspects of impressions of the stock market (see panels A compared to B).

# 6 Instrumental variables

In our setting, there is a potential concern for reverse causality and omitted variable bias. Given that the impressions measures and financial questions are surveyed at the same point in time, it is also plausible to assume that an individual's financial behaviours, could influence his/her impressions about financial markets. For example, individuals who hold risky assets, may experience positive outcomes as a result of investing, which in turn have a positive effect on the beliefs of the stock market. Likewise, there could be unobserved omitted characteristics, which are related to our impressions measures and financial behaviours, for example, financial literacy. In order to address these concerns, and explore our hypothesis that impressions impact financial behaviours, we instrument current impressions with past impressions. That is, we exploit information contained in the KHPS which asks respondents to identify when they first formed their impressions and what this initial impression was, aligned to the five dimensions outlined above. We argue that these historical impressions are closely related to current impressions, due to a stability of preferences and behaviours over the life course, and that these past impressions are based on historical life experiences, and as a result unrelated to current financial behaviours, other than through current impressions. This approach is similar to Jiang and Lim (2018), who elicit a causal impact of trust on debt behaviours, by linking past life experiences and current trust levels in the the U.S. context.

Specifically, we use information on an individual's first impressions about the stock market, and the age the individual formed these impressions. These historical impressions are closely related to an individual's current impressions, i.e. satisfying the key relevance assumption of the IV approach. We further argue that these initial impressions are formed before the individual have had the opportunity to interact with financial markets. We do not make any assumption about how these impressions were formed, instead assuming that they are capturing the individual past experiences which have impacted their impressions about financial markets. Given that these are taken in the past, we argue that these represent a suitable instrument for the current impressions given the potential persistence in the individual attitudes and beliefs.

For each of the five impression statements, the survey asked respondents to state what was their impression in the past and at what age they formed this impression. The specific wording is as

follows: *"This question asks your impressions about the securities market in the past. Please circle one answer which is most applicable as your first impression in the following questions. Please also mention your approximate age when you had such an impression."* The questions are aligned to the current impressions, consistent across the 2015 and 2016 waves, covering dimensions relating to profits, uncertainty, illegal activities, information disclosure, and attitudes towards large firms. Given these impressions are formed historically, we assume that these are time invariant and are applied across all waves.

Prior to the formal analysis, we present some descriptive statistics capturing the age of the respondent and the corresponding year these impressions were first formed. Figure A.2 presents the age respondents first formed their impressions about the financial markets, whilst Figure A.3 presented the corresponding year, that these impressions were formed. What is essential for our arguments is that the opinions were formed significantly in the past. Considering the year of the formations, there are clearly spikes between the late 1980's and 2000's, which tend to coincide with events such as the dot com bubble, significant relaxation of regulation and Japan's period of reduced economic growth. Overall there is variability across individuals which highlights these opinions are based on personal, historical experiences. Finally, it is also worth noting that a significant number of individuals report that they formed their opinions before the age of 25 - that is a period where generally the individual is more likely to have had limited interactions with wealth accumulation and stock market participation.

### 6.1 Method

To overcome potential concerns about the above empirical approach, that is the potential endogeneity of the impressions statements, we adopt an instrumental variable approach where we jointly model individual impressions and financial outcomes. To do this we employ a set of instruments, $X_2$, which are strongly associated with current impressions but arguably exogenous to current financial behaviours. Hence, we estimate the general following joint model:

$$HouseholdFinancialDecisions_i = X'\lambda + \theta Impressions + \epsilon_1 \tag{2}$$

$$Impressions_i^* = X'\pi_1 + \pi_2 PastImpression + \epsilon_2 \tag{3}$$

where *Household Financial Decisions* is the outcome of interest, *Impressions* are the potentially endogenous variables, *Past Impressions* are the instrumental variables, whilst $X$, is the set of controls included previously. $\epsilon_1$ and $\epsilon_2$ are white noise error terms.

The model is estimated simultaneously by a conditional (recursive) mixed process estimator (CMP), given that the dependent variables considered are non-linear in nature and are defined as above, i.e.

asset share, binary asset holding and censored level of financial assets. Further, the potentially endogenous independent variables are binary outcomes. Consequently, the CMP is an appropriate estimator in this context given that there is simultaneity between impressions and financial outcomes, but the availability of instruments allows the construction of a recursive set of equations, similar to a two-stage least squares (2SLS) regression. In the estimation, CMP is a limited information maximum likelihood (LIML) estimator where the first stage parameters are structural and the second stage parameters are reduced form, see Roodman (2011). In the results, we report average conditional marginal effects.

### 6.2 Results

Prior to discussing the outcome equations relating to financial behaviours we first consider the first stage equations which capture the the factors that are associated with agreeing with each of the statements about the financial markets, see Table 9. Given the joint modelling approach, we comment on the individual significance of the instrumental variables. In the first stage, in each equation, we include the exclusion restrictions, that is, the past impression variable relating to the specific impression. Across all the first stage equations, we find that the past impressions relating to the potential endogenous variable, are statistically significant determinants of current impressions. Moreover, the correlations between the error terms are generally statistically significant. These findings support our earlier hypothesis that initial historic impressions are closely related to current impressions.

The results related to the socioeconomic variables indicate that younger individuals are less likely to agree with the last three statements, which capture different dimensions of trust in the stock market, compared to those who are over 70 years old, the omitted category. A similar pattern is also found for the subjective health measure and the future retirement income variable. Overall, however, there appears to be a limited impact of demographic and socioeconomic characteristics on the determinants of different dimensions of impressions about the stock market. The only strong and consistent determinants of current impressions are past impressions, validating our empirical strategy. In addition, the lack of statistical significance in the explanatory variables further highlights that these impressions are determined at an individual level, and are independent of observable characteristics. This supports our arguments that these impressions are based on individual historical life experiences and are not systematically determined.

The findings of this section can help identify the causes of the low level of engagement in the stock market observed by Japanese households, compared to American or European households. Specifically, as noted earlier, that these past impressions are formed around events such as the dot com bubble, significant relaxation of regulation and Japan's period of reduce economic growth. Indicating that past experiences faced by Japanese households have a long lasting impact on individual attitudes towards financial institutions. However, an important policy implication is the finding that younger

individuals have a more positive attitude towards the functioning of the stock market.

Turning our attention to the financial outcomes, i.e., the second stage, once the instrumental variable approach is adopted, the impressions variables appear to have a limited impact on the financial outcomes of the household, except for the impressions relating to losses and uncertainty. In our preferred specification, presented in column 7 of Table 7, we find losses and profits maintain a statistically significant association with the share of risky assets held and the decision to hold risky assets. This suggests that when we account for potential endogeneity and reverse causality concerns, the effect of the impressions variables are slightly reduced, although those impressions relating to profits and uncertainty maintain an important relationship with financial behaviours. In contrast, once the IV approach is adopted, we find that impressions fail to impact the level of financial assets. This highlights the importance of accounting for reverse causality and omitted variable bias in the estimation of the relationship between household financial outcomes and subjective impressions, and more broadly trust.

# 7 The long term impact of impressions on individuals' financial decisions

This section explores the potential long term impact of a household's impressions about the functioning of the stock market on a household's planned future holdings. Individuals are asked to give their preference of holding five types of assets in preparation for their life twenty years from now in a yes/no responses, see Section 3.1 for the wording of these questions and Table 2 for the associated summary statistics. Specifically, these financial assets are: time deposits; government bonds; stocks; foreign-denominated financial products; and/or investment trusts. For ease of computation, the stocks; foreign-denominated financial products; and investment trust categories are merged into one category as they capture individual exposure to similar levels of risk. Individuals can respond positively to all the categories of assets they envisage holding 20 years from now, and so these categories are not mutually exclusive.

## 7.1 Methodologies: Seemingly unrelated regression

A novel aspect of our modelling approach in this section lies in jointly estimating probit models that correspond to the decision to hold each of the three financial assets categories, given that they are not mutually exclusive outcomes. This enables us to simultaneously investigate the relationship between the different dimensions of households' impressions and the decision to hold each type of financial assets using a system of equations, in which the error terms are assumed multivariate normal. Allowing the error terms in the regression equations to be correlated will address the potential issue

that there could be unobserved factors that affect all equations, whilst also improving the efficiency of the estimators.[22]

In general, the probit model is interpreted in terms of an underlying latent variable, $y_i^*$, of which $y_i$ is the realised observation, where the subscript $i$ denotes the household index..[23] In this paper $y_i^*$ will be the propensity of the respondent to hold the assets type in the future. The realised discrete choice made by the individual, $y_i$ is defined according to the following choice rule:

$$y_i = \begin{cases} 1 & \text{if } y_i^* > 0 \\ 0 & \text{if } y_i^* \leq 0 \, . \end{cases} \tag{4}$$

The seemingly unrelated regression is represented by the form:

$$\begin{aligned} y^*1_i &= g\left(\mathbf{x}_i'\gamma_{\mathbf{1}} + \mathbf{h}_i'\phi_{\mathbf{1}} + \varepsilon_{1i}\right) \\ y^*2_i &= g\left(\mathbf{x}_i'\gamma_{\mathbf{2}} + \mathbf{h}_i'\phi_{\mathbf{2}} + \varepsilon_{2i}\right) \\ y^*3_i &= g\left(\mathbf{x}_i'\gamma_{\mathbf{3}} + \mathbf{h}_i'\phi_{\mathbf{3}} + \varepsilon_{3i}\right) \end{aligned} \tag{5}$$

where $y1_i \, ; y2_i \, ; y3_{it}$, are the propensity of holding time deposits; government bonds; and stocks/investment trust respectively. $\mathbf{x}_i$ and $\mathbf{h}_i$ are matrices of the standard controls and the impression variables, respectively. Details of how this type of joint model can be estimated under these distributional assumptions are found in Roodman (2011).

### 7.2 Results

Table 10 presents the results relating to individuals' preferences for holding different types of assets when planning for the future. Prior to discussing the impressions of the functioning of the stock market on future asset holding aspiration, we first consider the demographic and socio-economic determinants. The analysis reveals that there is an inertia in asset holding, with those who currently hold risky assets in their financial portfolio more likely to report that they would hold risky financial assets in the future. Moreover, males are more likely to report a preference for holding risky assets and government bonds when planning for the future. Interestingly, we find that those individuals with a university education, and higher income show a preference for holding risky assets, whilst they are less likely to report a preference for time deposits. Conversely, married individuals have a

[22] There is a number of studies that employ a joint modelling approach in the literature of household finance (see, for example, Brown & Taylor, 2008; Gray, 2014; Bridges & Disney, 2010).

[23] Full formulations of the probit model can be found in Greene (2012) and Wooldridge (2015).

more conservative investment plan, with them being more likely to state a preference for holding time deposits, as opposed to risky assets. This finding accords with what is generally found in the literature that, married households are more conservative in their asset allocation by nature, see for example Fratantoni (1998).

Table 10 show that individuals' impressions of the functioning of the stock market have a statistically and economically significant impact on the decision to hold each of the three financial assets in the future. Among the three financial assets listed in the question, the stock category is regarded as a risky choice given the relative riskiness of the financial investments included in this category compared to investing in time deposits or government bonds. Therefore, individuals who agree with each statement, are expected to have a lower probability of holding these assets. Consequently, these individuals are expected to have a higher probability of buying time deposits and/or government bonds (relatively safe assets). The results in Table 10 are in line with these prior expectations. Specifically, the results show that those who have a negative impression regarding the functioning of the stock market have a higher probability of holding time deposit and less probability of holding stocks as future investments. In terms of magnitudes, Table 10 show that those agreeing that "Illegal activities such as insider trading are widespread", for example, have a 1.9% higher probability of holding time deposit as a future investment and a 2.7% lower probability of holding stocks compared to those who disagree with this statement.

These results provide an important evaluation of the current and future structure of Japanese households financial portfolios. This is important as the Japanese government has been trying to move household financial assets held as private bank deposits to their potential use as investments in the capital market. Aronson (2011) p.16 argue that, "achieving this goal would help provide ample assets for private retirement and for governmental social welfare payments, and would enable Japan to regain an important role in the international community."

However, although the process has succeeded in reshaping the legal structure of the financial system to a more open system based largely on markets and information disclosure, no substantial progress has been achieved related to the issue of sub-optimal use of household financial assets. For example, the OECD (2020) shows that the share of equity held by Japanese households was on average 7.6% in 2000, 6.9% in 2010 and 8% in 2020, for the U.S. these figures are 35% in 2000, 27.1% in 2010 and 36% in 2020.

Therefore, the results found in this paper may suggest that tackling factors related to individual impressions about the stock market may enhance an individual's participation in the stock market and lead to diversified financial portfolios at the household level. Such efforts may complement the Japanese government strategies aimed at growing Japan's financial services industry and achieving

broad societal goals.

# 8 Conclusion

This paper has thoroughly explored the impact an individual's impressions about the stock market have on a range of current and planned future, asset holdings. Our results highlight that impressions have an impact on the decision to hold risky assets, the share of risky assets held and the level of financial assets. These results highlight the important role individual subjective impressions have on observed financial behaviours. We find that the results relating to impressions about uncertainty and profitability are robust to a novel instrumental variable approach, where current impressions are instrumented using past impressions. Finally, the analysis reveals that these impressions are important not only for current financial decisions but also planned future asset allocations, further highlighting the long term impact of these impressions.

Overall this paper has furthered our understanding of the role of subjective impressions and household portfolio decisions. It has contributed to the growing number of studies which explore the role of trust in financial institutions. Furthermore, by considering the context of Japan, it highlights potentially important explanatory variables that have not been explored for Japanese households before in this context. These factors might provide an explanation to the low stock market participation rate and be crucial in understanding Japanese household investment decisions.

The results of this paper provide valuable insight into the potential impact of financial reforms and how this could interact with individual impressions about financial markets. For example, the deregulation of the financial markets across many developed countries in the 1980s which aimed to promote competition and efficiency, and 'Financial System Reform (Japanese Big Bang)' which commenced in 1996 and aimed to rebuild the Japanese financial market could also impact individual impressions about the stock market. This could in turn impact a household's financial decisions. Our findings indicate that improving the perceptions and removing misconceptions about financial markets, for example, through improved financial literacy programs, could contribute to improved financial well-being for households.

# 9 Tables

**Table 1:** The distribution of risky assets share

| | % of holding | Mean | Std.Dev | Median | 75% | 90% | 95% |
|---|---|---|---|---|---|---|---|
| Risky assets ratio | 23% | 0.070 | 0.175 | 0 | 0 | 0.28 | 0.50 |
| Financial assets | 79% | 4.953 | 2.844 | 5.772 | 6.945 | 7.862 | 8.329 |
| Observations | | | 12,182 | | | | |

**Table 2:** Financial assets would you like to purchase

| **Which financial assets would you like to purchase in preparation for your life twenty years from now? Or, which financial assets have you purchased for that purpose? Please circle all that apply.** | |
|---|---|
| Time deposits | 0.86 |
| Government bonds | 0.10 |
| Stocks | 0.11 |
| Foreign-denominated financial products | 0.07 |
| Investment trust | 0.11 |

**Table 3:** Definition and summary statistics: statements capturing impression about the stock market

| Please circle the answer that best applies to you for each of the following statements regarding your impression about the stock market. | Agree | Somewhat agree | Can't say either way | Somewhat disagree | Disagree | **Dummy** |
|---|---|---|---|---|---|---|
| ***Profits are uncertain*** | | | | | | |
| Profits cannot be made with certainty. | 0.38 | 0.31 | 0.25 | 0.04 | 0.02 | **68.72** |
| ***Losses are possible*** | | | | | | |
| Significant losses are possible. | 0.49 | 0.30 | 0.18 | 0.02 | 0.01 | **79.07** |
| ***High illegal activities*** | | | | | | |
| Illegal activities such as insider trading are widespread. | 0.21 | 0.27 | 0.42 | 0.08 | 0.02 | **47.64** |
| ***No disclosure of information*** | | | | | | |
| No much progress has been made in terms of disclosure of information on corporate performance. | 0.15 | 0.25 | 0.51 | 0.07 | 0.02 | **40.32** |
| ***Firms favor large investor*** | | | | | | |
| Securities firms inappropriately favor large investors, such as large corporations, rather than general investors. | 0.19 | 0.28 | 0.46 | 0.05 | 0.02 | **47.49** |

As discussed in the data section, these variables are collapsed to dummy variables, which take the value of one if the respondent 'Agree or Somewhat agree' with the statement and zero otherwise.

**Table 4:** Summary statistics by age categories

| | | **Age categories** | | | |
|---|---|---|---|---|---|
| | **Mean** | 20-39 | 40-49 | 50-59 | 60+ |
| ***Current holding of:*** | | | | | |
| Risky assets ratio | 0.07 | 0.04 | 0.06 | 0.08 | 0.10 |
| Financial assets | 4.95 | 4.10 | 4.54 | 5.10 | 5.78 |
| ***Future holding of:*** | | | | | |
| Time deposits | 0.86 | 0.87 | 0.87 | 0.88 | 0.84 |
| Government bonds | 0.10 | 0.08 | 0.07 | 0.10 | 0.15 |
| risky assets | 0.23 | 0.22 | 0.22 | 0.23 | 0.24 |
| ***Impressions statements.:*** | | | | | |
| Profits are uncertain | 68.72 | 64.62 | 68.68 | 69.35 | 70.95 |
| Losses are possible | 79.07 | 77.24 | 79.84 | 79.52 | 79.15 |
| High illegal activities | 47.64 | 43.96 | 44.74 | 48.81 | 51.71 |
| No disclosure of information | 40.32 | 33.75 | 37.20 | 42.21 | 45.91 |
| Firms favor large investor | 47.49 | 36.15 | 41.92 | 50.52 | 57.52 |
| Observations | 12182 | 2329 | 3225 | 3165 | 3463 |

Notes:

**Table 5:** Summary statistics: Control variables

| **Continuous Variables** | | **Mean** | **Std. Dev.** |
|---|---|---|---|
| Equivalised income | Household disposable income adjusted for household composition using the OECD scale.Specifically, household total pre-tax income is divided by 1.5 for each adult other that the household's head and by 0.3 for each child. | 5.6196 | 0.59240 |
| Net worth | Inverse hyperbolic sine transformation of the real total value of household financial and non-financial assets minus total debt (including mortgage). This variable includes house and plot values. | 4.8031 | 5.7263 |
| **Binary Variables** | | | **Percentage** |
| Married | 1 if the respondent is married or cohabiting, 0 otherwise. | | 0.78 |
| Male | 1 if respondent is male, 0 if female. | | 0.50 |
| Retirement inc. | 1 if respondent has sufficient income and assets for retirement, 0 otherwise. | | 0.09 |
| Home owner | 1 if respondent is a home owner, 0 otherwise. | | 0.79 |
| ***Age categories ('+70' is the omitted category)*** | | | 0.04 |
| 20-29 | 1 if respondent's age is between 20-29, 0 otherwise. | | 0.03 |
| 30-39 | 1 if respondent's age is between 30-39, 0 otherwise. | | 0.16 |
| 40-49 | 1 if respondent's age is between 40-49, 0 otherwise. | | 0.26 |
| 50-59 | 1 if respondent's age is between 50-59, 0 otherwise. | | 0.26 |
| 60-69 | 1 if respondent's age is between 60-69, 0 otherwise. | | 0.25 |
| ***Education level ('Junior high school and below' is the omitted category)*** | | | 0.11 |
| High school | 1 if respondent's highest level of education is high school level, 0 otherwise. | | 0.46 |
| College | 1 if respondent's highest level of education is college, 0 otherwise. | | 0.16 |
| University+ | 1 if respondent's highest level of education is university or higher, 0 otherwise. | | 0.27 |
| ***Employment status-(currently employed is the omitted category)*** | | | 0.63 |
| Part-time | 1 if respondent's is in part-time employment, 0 otherwise. | | 0.14 |
| Unemployed | 1 if respondent's is unemployed, 0 otherwise. | | 0.02 |
| Other | 1 if respondent's is in the other category which includes retirement, 0 otherwise. | | 0.21 |
| ***Self-Reported Health Status - (Being of poor health is omitted category)*** | | | 0.15 |
| Good | 1 if the respondent reports being in good health, 0 otherwise | | 0.41 |
| Normal | 1 if the respondent reports being in normal health, 0 otherwise | | 0.44 |
| ***Region (Kantō is the omitted category)*** | | | 0.33 |
| Hokkaidō | 1 if the respondent lives in Hokkaidō, 0 otherwise. | | 0.06 |
| Tōhoku | 1 if the respondent lives in Tōhoku, 0 otherwise. | | 0.06 |
| Chūbu | 1 if the respondent lives in Chūbu, 0 otherwise. | | 0.17 |
| Kinki | 1 if the respondent lives in Kinki, 0 otherwise. | | 0.19 |
| Chūgoku | 1 if the respondent lives in Chūgoku, 0 otherwise. | | 0.05 |
| Shikoku | 1 if the respondent lives in Shikoku, 0 otherwise. | | 0.03 |
| Kyūshū | 1 if the respondent lives in Kyūshū, 0 otherwise. | | 0.11 |
| **Number of observations** | | | 12240 |

**Table 6:** Baseline specification

| | Share of risky assets | Probability of holding risky assets | log of financial assets |
|---|---|---|---|
| Married | -0.0110 | 0.0208 | 0.2636*** |
| | (0.0076) | (0.0166) | (0.0914) |
| Male | 0.0176*** | 0.0255* | -0.0346 |
| | (0.0065) | (0.0147) | (0.0823) |
| *Age:* | | | |
| 20-30 | -0.0769*** | -0.1848*** | -1.3347*** |
| | (0.0192) | (0.0427) | (0.2141) |
| 30-40 | -0.0477*** | -0.1308*** | -0.6678*** |
| | (0.0142) | (0.0327) | (0.1718) |
| 40-50 | -0.0321** | -0.0797*** | -0.5339*** |
| | (0.0127) | (0.0300) | (0.1619) |
| 50-60 | -0.0210* | -0.0367 | -0.4484*** |
| | (0.0122) | (0.0295) | (0.1592) |
| 60-70 | -0.0130 | -0.0137 | -0.2023 |
| | (0.0113) | (0.0266) | (0.1425) |
| *Education:* | | | |
| High school | 0.0193* | 0.0306 | 0.4912*** |
| | (0.0102) | (0.0230) | (0.1233) |
| College | 0.0382*** | 0.0897*** | 0.8450*** |
| | (0.0113) | (0.0267) | (0.1412) |
| University+ | 0.0538*** | 0.1424*** | 0.9994*** |
| | (0.0105) | (0.0244) | (0.1306) |
| *Employment:* | | | |
| Part-time | 0.0203*** | 0.0402** | 0.0920 |
| | (0.0075) | (0.0180) | (0.1026) |
| Unemployed | -0.0207 | -0.0532 | -0.2886 |
| | (0.0132) | (0.0328) | (0.1784) |
| Other | 0.0204*** | 0.0517*** | 0.6663*** |
| | (0.0070) | (0.0165) | (0.0891) |
| *Subjective health:* | | | |
| Good | -0.0140** | -0.0294* | -0.0021 |
| | (0.0069) | (0.0158) | (0.0856) |
| Normal | -0.0209*** | -0.0456*** | -0.0822 |
| | (0.0067) | (0.0147) | (0.0805) |
| Home owner | 0.0267*** | 0.0542*** | 0.4529*** |
| | (0.0087) | (0.0179) | (0.0831) |
| Equivalised income | 0.0226*** | 0.0865*** | 0.9681*** |
| | (0.0045) | (0.0105) | (0.0586) |
| Net wealth | 0.0040*** | 0.0141*** | 0.2243*** |
| | (0.0006) | (0.0014) | (0.0067) |
| Retirement inc. | 0.0387*** | 0.1441*** | 1.0299*** |
| | (0.0062) | (0.0153) | (0.0805) |
| *Regions:* | | | |
| Hokkaido | -0.0998*** | -0.2320*** | -0.2163 |
| | (0.0158) | (0.0394) | (0.1698) |
| Tohoku | -0.0257* | -0.0496* | -0.1306 |
| | (0.0146) | (0.0301) | (0.1519) |
| Chubu | -0.0026 | -0.0035 | 0.1947** |
| | (0.0075) | (0.0181) | (0.0963) |
| Kinki | -0.0110 | -0.0013 | 0.0865 |
| | (0.0073) | (0.0175) | (0.1020) |
| Chugoku | -0.0290** | -0.0508* | 0.2014 |
| | (0.0141) | (0.0306) | (0.1566) |
| Shikoku | -0.0178 | -0.0063 | 0.2586 |
| | (0.0131) | (0.0372) | (0.1876) |
| Kyushu | -0.0291*** | -0.0635*** | -0.1984 |
| | (0.0100) | (0.0223) | (0.1212) |
| 2013 | 0.0005 | -0.0070 | -0.0603 |
| | (0.0030) | (0.0065) | (0.0432) |
| 2014 | 0.0071** | 0.0113 | 0.0520 |
| | (0.0034) | (0.0073) | (0.0454) |
| 2015 | 0.0117*** | 0.0151* | 0.0741 |
| | (0.0036) | (0.0078) | (0.0461) |
| 2016 | 0.0123*** | 0.0096 | 0.0425 |
| | (0.0041) | (0.0083) | (0.0495) |
| Observations | 12182 | 12182 | 12182 |

Notes: (i) *denotes significance at the 10% level **denotes significance at the 5% level and ***denotes significance at the 1% level. (ii) The results shown in the table refer to the average marginal effect (AME) of a one point change of the explanatory variable in question on the expected value of the dependent variable. (iii) Standard errors pertaining to these AMEs are clustered at the household level and shown in parenthesis.

**Table 7:** Impressions statements.

| | (1) | (2) | (3) | (4) | (5) | (6) | (7:IV) |
|---|---|---|---|---|---|---|---|
| The share of risky assets: | | | | | | | |
| Profits are uncertain | -0.019*** | | | | | -0.022*** | -0.055*** |
| | (0.004) | | | | | (0.004) | (0.019) |
| Losses are possible | | -0.001 | | | | 0.019*** | 0.079*** |
| | | (0.005) | | | | (0.006) | (0.017) |
| High illegal activities | | | -0.022*** | | | -0.023*** | -0.013 |
| | | | (0.004) | | | (0.005) | (0.018) |
| No disclosure of info. | | | | -0.015*** | | -0.007 | -0.019 |
| | | | | (0.004) | | (0.005) | (0.018) |
| Firms favor large investors | | | | | 0.007 | 0.016*** | 0.019 |
| | | | | | (0.004) | (0.004) | (0.018) |
| Prob. of holding risky assets: | | | | | | | |
| Profits are uncertain | -0.038*** | | | | | -0.051*** | -0.119** |
| | (0.009) | | | | | (0.010) | (0.047) |
| Losses are possible | | 0.013 | | | | 0.067*** | 0.233*** |
| | | (0.011) | | | | (0.013) | (0.036) |
| High illegal activities | | | -0.066*** | | | -0.077*** | -0.061 |
| | | | (0.010) | | | (0.011) | (0.041) |
| No disclosure of info. | | | | -0.041*** | | -0.020* | -0.092** |
| | | | | (0.009) | | (0.011) | (0.041) |
| Firms favor large investors | | | | | 0.028*** | 0.055*** | 0.076* |
| | | | | | (0.009) | (0.010) | (0.044) |
| Financial assets holding: | | | | | | | |
| Profits are uncertain | 0.091* | | | | | -0.047 | -0.054 |
| | (0.053) | | | | | (0.059) | (0.050) |
| Losses are possible | | 0.290*** | | | | 0.393*** | 0.119** |
| | | (0.064) | | | | (0.073) | (0.051) |
| High illegal activities | | | -0.090* | | | -0.191*** | 0.014 |
| | | | (0.052) | | | (0.059) | (0.039) |
| No disclosure of info. | | | | -0.078 | | -0.118** | 0.011 |
| | | | | (0.051) | | (0.055) | (0.040) |
| Firms favor large investors | | | | | 0.160*** | 0.195*** | -0.001 |
| | | | | | (0.052) | (0.053) | (0.021) |
| Observations | 12182 | 12182 | 12182 | 12182 | 12182 | 12182 | 12182 |

Notes: See notes in Table 6

**Table 8:** The role of general trust measures in the share of risky assets (2015 and 2016 only)

| | Share of risky assets | Probability of holding risky assets | log of financial assets |
|---|---|---|---|
| Panel A: General measures only: | | | |
| Trust in government | -0.004 | -0.003 | 0.165** |
| | (0.007) | (0.014) | (0.075) |
| Trust in neighbors | -0.017* | -0.037* | -0.118 |
| | (0.010) | (0.021) | (0.107) |
| Observations | 4525 | 4525 | 4525 |
| Panel B: Impression statements only: | | | |
| Profits are uncertain | -0.023*** | -0.046*** | 0.062 |
| | (0.007) | (0.015) | (0.082) |
| Losses are possible | 0.022*** | 0.063*** | 0.421*** |
| | (0.008) | (0.018) | (0.103) |
| High illegal activities | -0.022*** | -0.084*** | -0.213** |
| | (0.008) | (0.016) | (0.083) |
| No disclosure of info. | -0.004 | -0.006 | -0.089 |
| | (0.008) | (0.016) | (0.080) |
| Firms favor large investors | 0.012* | 0.033** | 0.218*** |
| | (0.007) | (0.015) | (0.081) |
| Observations | 4525 | 4525 | 4525 |
| Panel C: Impression and general measures : | | | |
| Profits are uncertain | -0.022*** | -0.045*** | 0.060 |
| | (0.007) | (0.015) | (0.082) |
| Losses are possible | 0.022*** | 0.062*** | 0.418*** |
| | (0.008) | (0.018) | (0.102) |
| High illegal activities | -0.021*** | -0.084*** | -0.222*** |
| | (0.008) | (0.016) | (0.083) |
| No disclosure of info. | -0.004 | -0.006 | -0.092 |
| | (0.008) | (0.016) | (0.080) |
| Firms favor large investors | 0.013* | 0.033** | 0.211*** |
| | (0.007) | (0.015) | (0.081) |
| Trust in government | -0.002 | 0.004 | 0.150** |
| | (0.007) | (0.014) | (0.075) |
| Trust in neighbors | -0.015 | -0.033 | -0.114 |
| | (0.010) | (0.021) | (0.107) |
| Observations | 4525 | 4525 | 4525 |

Notes: See notes in Table 6

**Table 9:** The characteristics of those agreeing with each statement

| | Profitability | Riskiness | Illegal | Disclosure | Large investors |
|---|---|---|---|---|---|
| Married | 0.010 | 0.018 | -0.007 | -0.014 | -0.048*** |
| | (0.014) | (0.011) | (0.016) | (0.015) | (0.015) |
| Male | 0.005 | -0.006 | -0.002 | 0.020 | 0.060*** |
| | (0.012) | (0.011) | (0.014) | (0.013) | (0.013) |
| *Age:* | | | | | |
| 20-30 | -0.066* | 0.025 | -0.059 | -0.102** | -0.181*** |
| | (0.036) | (0.033) | (0.043) | (0.041) | (0.041) |
| 30-40 | -0.045 | 0.043 | -0.071** | -0.102*** | -0.171*** |
| | (0.030) | (0.027) | (0.033) | (0.031) | (0.033) |
| 40-50 | -0.025 | 0.045* | -0.082*** | -0.068** | -0.125*** |
| | (0.029) | (0.026) | (0.031) | (0.030) | (0.032) |
| 50-60 | -0.014 | 0.043* | -0.038 | -0.024 | -0.059* |
| | (0.028) | (0.025) | (0.031) | (0.030) | (0.031) |
| 60-70 | 0.010 | 0.054** | -0.003 | 0.016 | 0.003 |
| | (0.027) | (0.023) | (0.029) | (0.028) | (0.029) |
| *Education:* | | | | | |
| High school | -0.024 | -0.014 | 0.010 | -0.022 | 0.018 |
| | (0.017) | (0.015) | (0.021) | (0.019) | (0.020) |
| College | -0.008 | 0.022 | 0.007 | 0.021 | 0.033 |
| | (0.021) | (0.019) | (0.024) | (0.022) | (0.023) |
| University+ | -0.026 | 0.008 | -0.016 | -0.030 | 0.033 |
| | (0.019) | (0.017) | (0.023) | (0.021) | (0.021) |
| *Employment:* | | | | | |
| Part-time | -0.010 | -0.013 | -0.014 | 0.001 | 0.020 |
| | (0.016) | (0.014) | (0.018) | (0.016) | (0.018) |
| Unemployed | -0.004 | 0.027 | 0.015 | 0.053 | 0.061* |
| | (0.034) | (0.030) | (0.039) | (0.036) | (0.036) |
| Other | 0.004 | -0.005 | -0.004 | -0.004 | 0.003 |
| | (0.015) | (0.013) | (0.017) | (0.016) | (0.016) |
| *Subjective health:* | | | | | |
| Good | 0.004 | -0.007 | -0.032* | -0.029* | -0.025* |
| | (0.015) | (0.013) | (0.017) | (0.015) | (0.015) |
| Normal | -0.029** | -0.022* | -0.040** | -0.041*** | -0.039*** |
| | (0.014) | (0.012) | (0.016) | (0.015) | (0.015) |
| Home owner | 0.017 | 0.016 | -0.026* | -0.019 | 0.004 |
| | (0.013) | (0.012) | (0.016) | (0.014) | (0.014) |
| Equivalised income | -0.001 | -0.008 | -0.034*** | -0.006 | 0.019** |
| | (0.009) | (0.007) | (0.010) | (0.010) | (0.010) |
| Net wealth | 0.002* | 0.001 | 0.000 | 0.001 | 0.002** |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| Enough retirement inc. | -0.054*** | -0.017 | -0.064*** | -0.052*** | -0.025 |
| | (0.016) | (0.014) | (0.019) | (0.019) | (0.018) |
| *Past impression variables:* | | | | | |
| Profits are uncertain | 0.193*** | | | | |
| | (0.009) | | | | |
| Losses are possible | | 0.178*** | | | |
| | | (0.008) | | | |
| High illegal activities | | | 0.261*** | | |
| | | | (0.010) | | |
| No disclosure of info. | | | | 0.242*** | |
| | | | | (0.010) | |
| Firms favor large investors | | | | | 0.281*** |
| | | | | | (0.010) |
| Years dummies | Yes | Yes | Yes | Yes | Yes |
| Region dummies | Yes | Yes | Yes | Yes | Yes |
| Observations | 12084 | 12084 | 12084 | 12084 | 12084 |

Notes: See notes in Table 6

**Table 10:** The long term impact of stock market impressions on individuals' financial decisions

| | Future holdings of time deposits | Future holdings of gov. bonds | Future holdings of risky assets |
|---|---|---|---|
| Profits are uncertain | 0.0324*** | -0.0048 | -0.0691*** |
| | (0.0071) | (0.0071) | (0.0084) |
| Losses are possible | 0.0190** | 0.0115 | -0.0127 |
| | (0.0083) | (0.0083) | (0.0099) |
| High illegal activities | 0.0186*** | -0.0245*** | -0.0266*** |
| | (0.0070) | (0.0067) | (0.0083) |
| No disclosure of info. | -0.0075 | -0.0010 | 0.0043 |
| | (0.0070) | (0.0068) | (0.0083) |
| Firms favor large investors | -0.0238*** | 0.0224*** | 0.0450*** |
| | (0.0063) | (0.0060) | (0.0074) |
| Currently hold risky assets | -0.1168*** | 0.0082 | 0.2715*** |
| | (0.0066) | (0.0067) | (0.0068) |
| Married | 0.0223*** | -0.0148** | -0.0227** |
| | (0.0074) | (0.0071) | (0.0088) |
| Male | -0.0599*** | 0.0176*** | 0.0584*** |
| | (0.0070) | (0.0066) | (0.0081) |
| 20-30 | 0.0002 | -0.0423** | 0.0697*** |
| | (0.0224) | (0.0210) | (0.0263) |
| 30-40 | 0.0243 | -0.0576*** | 0.0409** |
| | (0.0173) | (0.0162) | (0.0205) |
| 40-50 | 0.0149 | -0.0688*** | 0.0341* |
| | (0.0164) | (0.0153) | (0.0196) |
| 50-60 | 0.0231 | -0.0420*** | 0.0134 |
| | (0.0162) | (0.0149) | (0.0193) |
| 60-70 | -0.0108 | 0.0035 | 0.0114 |
| | (0.0155) | (0.0142) | (0.0186) |
| *Education:* | | | |
| High school | -0.0130 | 0.0059 | -0.0026 |
| | (0.0103) | (0.0094) | (0.0119) |
| College | -0.0233* | 0.0145 | 0.0125 |
| | (0.0122) | (0.0112) | (0.0139) |
| University+ | -0.0618*** | 0.0243** | 0.0791*** |
| | (0.0109) | (0.0103) | (0.0126) |
| *Employment:* | | | |
| Part-time | -0.0001 | 0.0135 | 0.0091 |
| | (0.0101) | (0.0093) | (0.0115) |
| Unemployed | 0.0094 | -0.0015 | 0.0209 |
| | (0.0224) | (0.0214) | (0.0257) |
| Other | 0.0041 | 0.0086 | 0.0144 |
| | (0.0087) | (0.0079) | (0.0101) |
| *Subjective health:* | | | |
| Good | -0.0109 | -0.0132 | -0.0041 |
| | (0.0087) | (0.0082) | (0.0102) |
| Normal | 0.0002 | -0.0110 | -0.0211** |
| | (0.0086) | (0.0080) | (0.0100) |
| Home owner | 0.0302*** | -0.0108 | -0.0179** |
| | (0.0076) | (0.0073) | (0.0090) |
| Equivalised income | -0.0144*** | 0.0256*** | 0.0335*** |
| | (0.0052) | (0.0049) | (0.0062) |
| Net wealth | 0.0010* | 0.0009 | 0.0003 |
| | (0.0006) | (0.0006) | (0.0007) |
| Enough retirement inc. | 0.0031 | 0.0061 | 0.0410*** |
| | (0.0099) | (0.0094) | (0.0115) |
| Years dummies | Yes | Yes | Yes |
| Region dummies | Yes | Yes | Yes |
| Observations | 12150 | 12150 | 12150 |

Notes: See notes in Table 6

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# Appendices

## A Figures

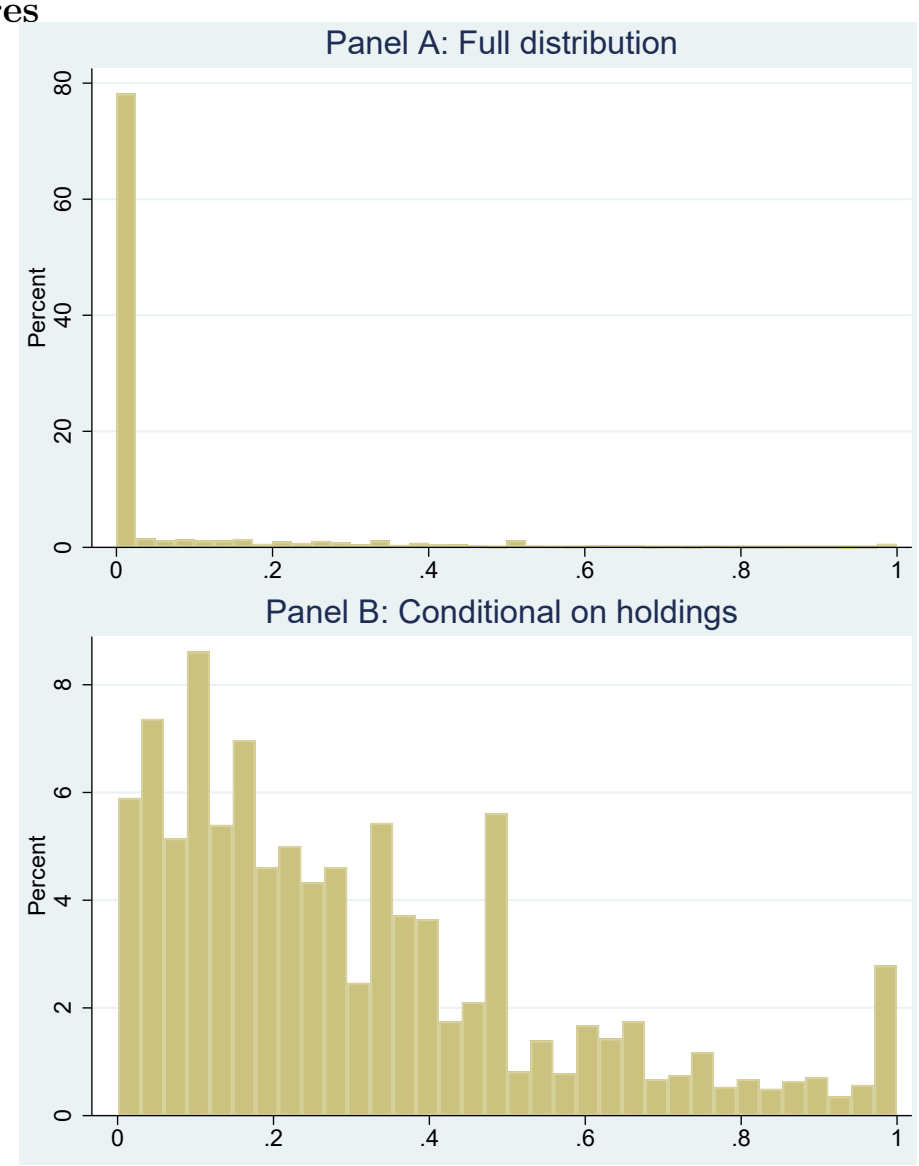


**Figure A.1:** The distributions of the proportion of risky assets

*Notes* : The above figure shows the distributions of the fraction of financial wealth invested in risky assets. Where risky assets is defined to be total value of the 'securities' category and total financial wealth is defined as the total value of 'deposits' and 'securities' categories combined. 'Securities' comprise: shares (reported at market value); bonds (at par value); stock investment trusts (market value); corporate and public bond investment trusts (market value); and loans in trust and money in trust (par value). 'Deposits' comprise: postal savings certificates; national and regional (e.g., Shinkin) bank holdings of time deposits, installment savings, and ordinary deposits; company deposits; gold investment and savings accounts; and wealth held in the form of medium-term government bond funds.

**Table A.1:** Baseline specification, random effects regressions.

| | Share of risky assets | Probability of holding risky assets | log of financial assets |
|---|---|---|---|
| Married | -0.0803 | 0.0258** | 0.4522*** |
| | (0.0640) | (0.0115) | (0.0992) |
| Male | 0.1486*** | 0.0085 | -0.1777* |
| | (0.0553) | (0.0117) | (0.1061) |
| *Age:* | | | |
| 20-30 | -0.6690*** | -0.1533*** | -1.5483*** |
| | (0.1626) | (0.0296) | (0.2288) |
| 30-40 | -0.4311*** | -0.1253*** | -0.9357*** |
| | (0.1135) | (0.0208) | (0.1677) |
| 40-50 | -0.2942*** | -0.0851*** | -0.6907*** |
| | (0.1021) | (0.0189) | (0.1530) |
| 50-60 | -0.1826* | -0.0574*** | -0.4316*** |
| | (0.0976) | (0.0179) | (0.1433) |
| 60-70 | -0.0782 | -0.0000 | -0.1591 |
| | (0.0875) | (0.0150) | (0.1197) |
| *Education:* | | | |
| High school | 0.1483* | 0.0326* | 0.7894*** |
| | (0.0867) | (0.0176) | (0.1612) |
| College | 0.3220*** | 0.0824*** | 1.4321*** |
| | (0.0975) | (0.0208) | (0.1912) |
| University+ | 0.4757*** | 0.1545*** | 1.7858*** |
| | (0.0897) | (0.0194) | (0.1766) |
| *Employment:* | | | |
| Part-time | 0.1734*** | 0.0188* | -0.0554 |
| | (0.0615) | (0.0105) | (0.0788) |
| Unemployed | -0.1905* | -0.0509** | -0.0650 |
| | (0.1103) | (0.0220) | (0.1474) |
| Other | 0.1795*** | 0.0275*** | 0.3695*** |
| | (0.0585) | (0.0102) | (0.0814) |
| *Subjective health:* | | | |
| Good | -0.1007* | -0.0113 | -0.0356 |
| | (0.0546) | (0.0091) | (0.0684) |
| Normal | -0.1684*** | -0.0109 | -0.1308** |
| | (0.0512) | (0.0082) | (0.0622) |
| Home owner | 0.2685*** | 0.0437*** | 0.4015*** |
| | (0.0712) | (0.0112) | (0.0897) |
| Equivalised income | 0.1960*** | 0.0440*** | 0.5957*** |
| | (0.0361) | (0.0060) | (0.0472) |
| Net wealth | 0.0344*** | 0.0068*** | 0.1655*** |
| | (0.0052) | (0.0007) | (0.0049) |
| Retirement inc. | -0.2183*** | -0.0311*** | -0.4022*** |
| | (0.0364) | (0.0061) | (0.0484) |
| *Regions:* | | | |
| Hokkaido | -0.8614*** | -0.1856*** | -0.4329* |
| | (0.1376) | (0.0321) | (0.2312) |
| Tohoku | -0.2855** | -0.0722*** | -0.3120 |
| | (0.1248) | (0.0229) | (0.2039) |
| Chubu | -0.0403 | -0.0088 | 0.3017** |
| | (0.0652) | (0.0150) | (0.1402) |
| Kinki | -0.0990 | -0.0095 | 0.0011 |
| | (0.0635) | (0.0143) | (0.1344) |
| Chugoku | -0.2829** | -0.0482** | 0.2387 |
| | (0.1184) | (0.0234) | (0.2173) |
| Shikoku | -0.1315 | -0.0086 | 0.3965 |
| | (0.1187) | (0.0317) | (0.2866) |
| Kyushu | -0.2817*** | -0.0710*** | -0.4151** |
| | (0.0866) | (0.0182) | (0.1663) |
| 2013 | -0.0026 | -0.0081 | -0.0607 |
| | (0.0264) | (0.0064) | (0.0456) |
| 2014 | 0.0649** | 0.0134** | 0.0346 |
| | (0.0293) | (0.0064) | (0.0464) |
| 2015 | 0.1138*** | 0.0199*** | 0.0747 |
| | (0.0313) | (0.0066) | (0.0479) |
| 2016 | 0.1165*** | 0.0160** | 0.0770 |
| | (0.0352) | (0.0067) | (0.0496) |
| Constant | -3.0496*** | | |
| | (0.2401) | | |
| lnsig_1_1 | -0.6074*** | | |
| | (0.0666) | | |
| Observations | 12150 | 12150 | 12150 |

Notes: See notes in Table 6.

**Table A.2:** Impressions statements individually, random effects regressions.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| The share of risky assets: | | | | | | |
| Profits are uncertain | -0.152*** | | | | | -0.180*** |
| | (0.031) | | | | | (0.034) |
| Losses are possible | | 0.005 | | | | 0.165*** |
| | | (0.039) | | | | (0.044) |
| High illegal activities | | | -0.178*** | | | -0.181*** |
| | | | (0.033) | | | (0.039) |
| No disclosure of info. | | | | -0.120*** | | -0.058 |
| | | | | (0.031) | | (0.036) |
| Firms favor large investors | | | | | 0.048 | 0.117*** |
| | | | | | (0.032) | (0.033) |
| Prob. of holding risky assets: | | | | | | |
| Profits are uncertain | -0.023*** | | | | | -0.032*** |
| | (0.006) | | | | | (0.006) |
| Losses are possible | | 0.013** | | | | 0.039*** |
| | | (0.006) | | | | (0.008) |
| High illegal activities | | | -0.023*** | | | -0.024*** |
| | | | (0.006) | | | (0.007) |
| No disclosure of info. | | | | -0.015*** | | -0.008 |
| | | | | (0.005) | | (0.006) |
| Firms favor large investors | | | | | 0.003 | 0.009 |
| | | | | | (0.005) | (0.006) |
| Financial assets holding: | | | | | | |
| Profits are uncertain | 0.025 | | | | | -0.026 |
| | (0.040) | | | | | (0.047) |
| Losses are possible | | 0.114** | | | | 0.141** |
| | | (0.048) | | | | (0.056) |
| High illegal activities | | | -0.021 | | | -0.063 |
| | | | (0.040) | | | (0.046) |
| No disclosure of info. | | | | 0.006 | | -0.005 |
| | | | | (0.039) | | (0.044) |
| Firms favor large investors | | | | | 0.074* | 0.073* |
| | | | | | (0.039) | (0.041) |

Notes: See notes in Table 6.

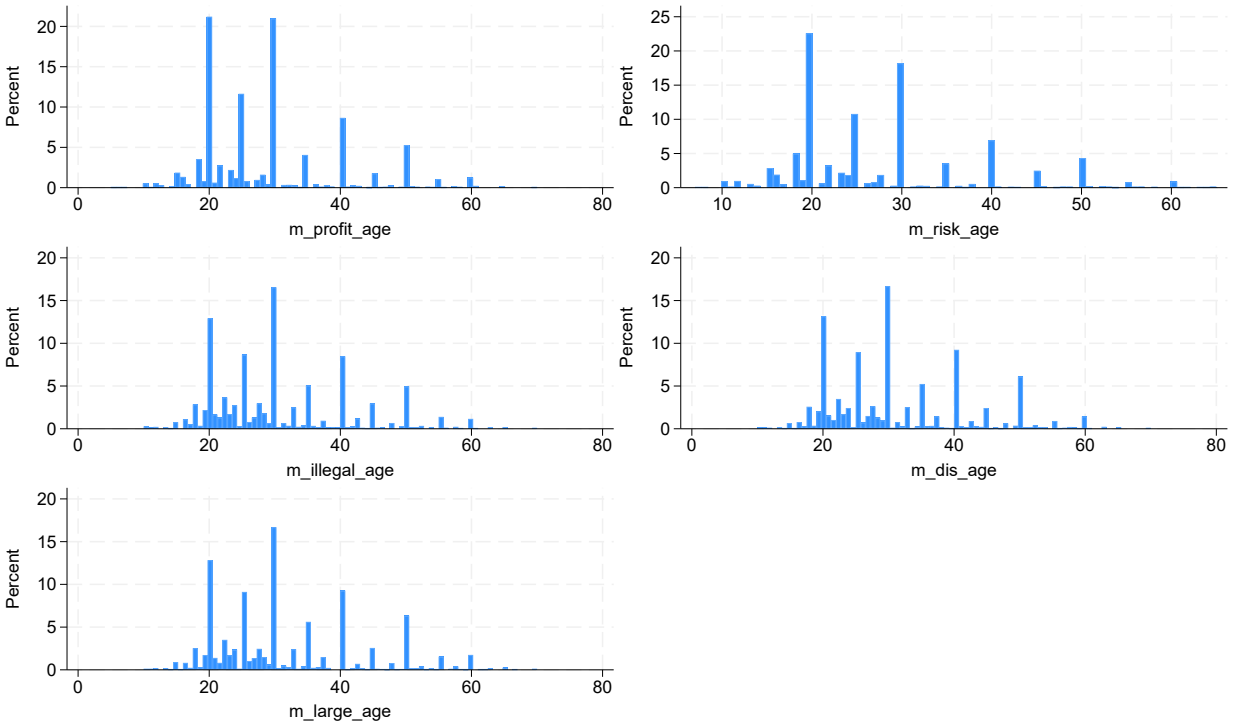


**Figure A.2:** The distributions of the age individuals formed their impressions about financial markets

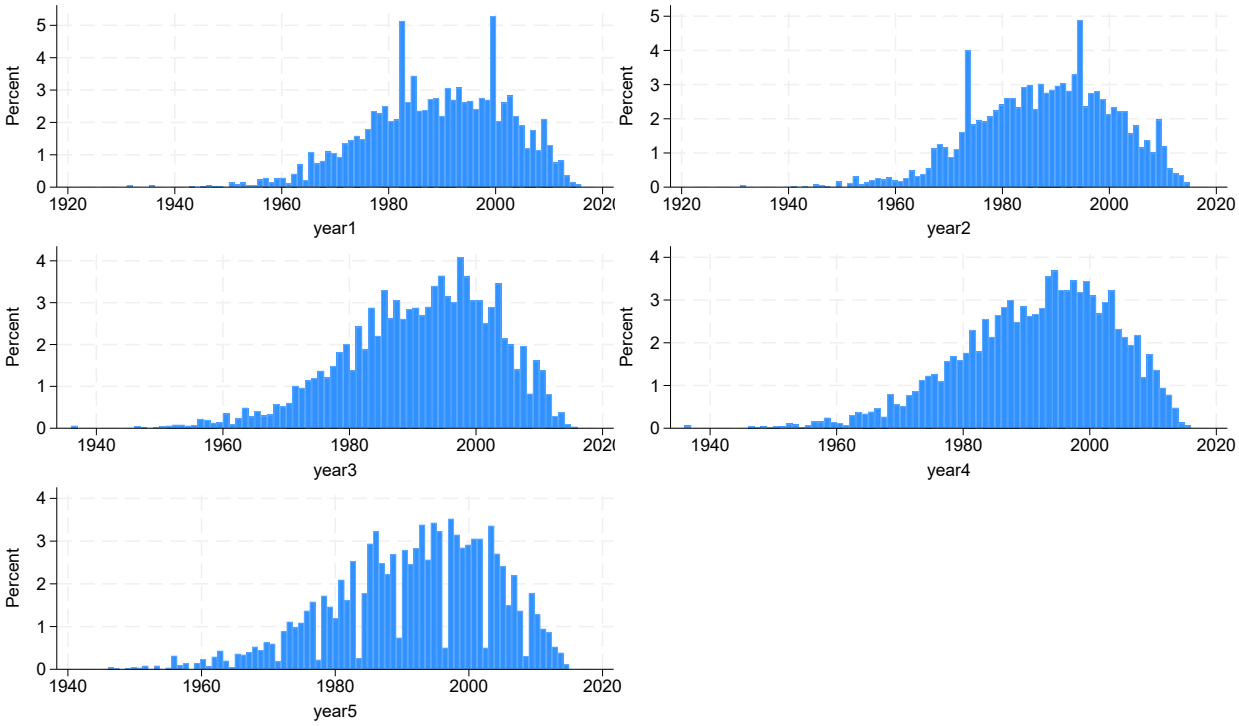


**Figure A.3:** The distributions of the year individuals formed their impressions about financial markets