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Financial Literacy of Middle and Older Generations:
Comparison of Japan and the United States[*]

by

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<u>Abstract</u>

Financial literacy holds growing interest for managing assets/savings during the longer retirement period currently experienced in rapidly aging countries. We examine and compare levels and determinants of financial literacy as well as its association to asset allocation among middle and older generations of Japan and the United States. We present some interesting findings. First, financial literacy is generally associated with educational attainment, cognitive skills, coursework in economics or finance, and income level. Second, financial literacy is associated with resultant asset allocation; individuals with higher literacy are more likely to invest in stocks or securities separate from their savings. These patterns are commonly observed in Japan and the United States.

Keywords: financial literacy, Japan, U.S., JSTAR, HRS, household asset allocation.

JEL Classification Codes: D14, G11, J26.

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1. Introduction

Financial literacy holds growing interest for managing assets/savings during the longer retirement period currently experienced in rapidly aging countries. Indeed, the case is most pronounced in and relevant to Japan, where population aging is taking place at the most rapid rate in the world in an environment that combines a persistent long-term low level fertility rate and continuing rise in life expectancy.[1] These factors have resulted in the older generation occupying a higher proportion of the total population at 27.3% while putting pressure on the sustainability of the pay-as-you-go public pension program (Shimizutani, Oshio and Fujii, 2016).

Under these circumstances, there are two devastating forces that act to lower the adequacy of retirement savings and thus obstruct the management of economic resources in later life for middle and older generations. One is a reduction in pension benefits and the other is a longer time horizon that has to be compensated. Thus, a higher level of financial literacy may serve as a device to contribute to mitigation of a decline in economic well-being in later life or even to enhance the potential standard of living in old age.[2]

Despite the rapidly changing demographic structure, research on financial literacy has a relatively shallow history, particularly in the case of Japan.[3] Economists

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[1] According to National Institute of Population and Social Security Research, the latest TFR (Total Fertility Rate) of Japan is 1.44 in 2016. The figure declined to below 1.3 in 2003-2005 and slightly recovered afterwards. The post-war development of TFR is described in detail by Shimizutani (2015). The latest life expectancy at birth in Japan is 80.98 year for males and 87.14 year for females in 2016, both of which represent the second longest life expectancy in the world.

[2] People relatively more financially sophisticated have been demonstrated to possess greater retirement wealth (Lusardi and Mitchell, 2011a, 2014, Clark et al. 2015). Among the reasons that more financially literate individuals are wealthier include (1) they plan and save more, (2) sophisticated individuals may earn higher returns on their investments (see Lusardi et al. 2017 for more detail), and/or (3) they may select better-diversified investments, thereby reducing exposure to nonmarket or idiosyncratic risk. While the study of retirement wealth is of great importance and is not yet mature, the subject is beyond the scope of this paper which focuses on a comparison of Japan and US financial literacy. We acknowledge that this is a very important future research agenda.

[3] Lusardi and Mitchell (2014) is a useful survey of the literature on financial literacy. They define

started to focus on the study of financial literacy in the 2000s (Lusardi and Mitchell, 2014). With some theoretical development, empirical studies, which have been undertaken mostly in the U.S., used "metrics" to examine the level of financial literacy in various subgroups and associated financial literacy to actual economic/financial decision. The current standardized measure of financial literacy is the number of correct answers to a set of three questions: 1) understanding of compounded interest, 2) understanding of inflation, and 3) understanding of risk and diversification. These questions were asked in a special module of the 2004 Health and Retirement Study (Lusardi and Mitchell, 2014).

Using these and other metrics of financial literacy, Lurardi and Mitchell (2014) concludes that in the U.S. the level of financial literacy is low and people are not financially literate. Moreover, the low level of financial literacy is found to be prevalent in other countries including Japan (Lusardi and Mitchell, 2011b, 2014). When looking at the data by subgroup, the level of financial literacy is hump-shaped along with age and is higher for males, the educated, employed individuals, or those who are higher earners (Lusardi and Mitchell, 2014). Furthermore, a large volume of empirical research documented that the module of financial literacy is indeed associated with a variety of financial decisions or economic behaviors, and financial literacy is confirmed to play a non-negligible role in those decisions/behaviors if instrument variable (IV) estimation is employed to address endogeneity. See Lusardi and Mitchell (2014) for a very thorough survey of this line of literature.

This study examines determinants of level of financial literacy in middle and older generations in Japan and then investigates its association to household decisions

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financial literacy as "people's ability to process economic information and make informed decisions about financial planning, wealth accumulation, debt and pensions." It is true also that the research history on financial literacy for younger generations is scarce.

regarding asset allocation. In order to uncover the characteristics of Japan, we perform

the same analyses as those in the U.S. and compare the findings. In contrast to a large

volume of research abroad, particularly in the U.S., there has been scarce research on

this subject in Japan. Among the few previous studies, Clark, Matsukura and Ogawa

(2013) revealed that a significantly higher probability of a correct answer to the

standard financial literacy questions is found in males, residents in urban areas, the

higher educated, or high income earners in Japan.[4] The study utilized a micro-level

dataset on individuals from the 2010 National Survey on Work and Family, focusing

on individuals in the sample who were aged 40 to 59 and employed at the time of the

survey. Furthermore, they found that financial literacy is partially linked with the

demand for human capital investment, measured by the need for additional skills to be

competitive at the current job.[5] In a more recent work, Yoshino et al. (2017) used a

dataset collected by the Central Council for Financial Service Information, which is

not based on a standard two stage random sampling, to examine factors linking to

financial literacy and the relationship between financial literacy and household asset

allocation.

This study performs two sets of analysis: the first is the determinants of the

level of financial literacy and the second is the association between financial literacy

and household asset allocation. Our contribution to the literature features two new

enhancements. First, we perform a Japan-U.S. comparison using internationally

standardized datasets. While we share the spirit of the analytical approach with

Yoshino et al. (2017), on middle and older generations, we use world-standard

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[4] Sekita (2011) performed a similar analysis and obtained the same pattern on the coefficients.
[5] Clark, Matsukura and Ogawa (2013) did not explore an association between financial literacy and asset holdings. Surprisingly, Yoshino et al. (2017) does not quote Clark, Matsukura and Ogawa (2013) or Sekita (2011) in their literature survey and proceeds with the discussion without mentioning those previous studies.

longitudinal datasets: Japanese Study on Aging and Retirement (JSTAR) for Japan and Health and Retirement Study (HRS) for the U.S. These surveys are "sisters" in international harmonization efforts for studies on population aging, and most of the variables collected are standardized across countries. Thus, these datasets are most suitable for a Japan-U.S. comparison in financial literacy, as described in the next section. Second, this paper advances the research in Japan. We focus on middle and older generations who are sensitive to retirement preparation or who are indeed retired. Moreover, we include some new variables as covariates which were not included in the previous literature in Japan, specifically, measures of cognitive ability and experience of taking an economics/accounting coursework. We believe that these additional variables will help to uncover a more accurate assessment of the impact of socio-economic status on financial literacy or household asset allocation.[6]

This paper is organized as follows. Section 2 describes the dataset used in the empirical analysis and presents descriptive statistics of financial literacy. Section 3 performs regression analysis to associate the level of financial literacy with a variety of factors including household demographics, socio-economic status, and measures of cognitive ability, and so on. Further, Section 4 investigates the relationship between financial literacy and household asset allocation. Section 5 concludes.

2. Data description

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[6] Other candidates for new variables include those related to behavioral economics (i.e., risk attitude and time discounting), those that capture current mental state (symptoms of depression), and expectations for the future (survival probability to measure the life horizon). While HRS contains those variables for some subgroups, unfortunately, those variables are not available for the subgroup who responded to the financial literacy questions. Thus, we cannot use those variables in the comparison. We confirmed that most of those variables are indeed significantly associated with financial literacy and hold an expected sign in the regression. The estimation results are reported in detail in Shimizutani and Yamada (2018) and some of them on determinants of financial literacy are in Appendix Table 1. The measurement of risk attitude and time discounting is also explained in the appendix of Shimizutani and Yamada (2018).

This study use microdata from two sets of comparable datasets, JSTAR and HRS. JSTAR is a world-standard longitudinal dataset on middle-aged and older generations and holds the position as the Japanese counterpart of HRS in the U.S., English Longitudinal Study of Ageing (ELSA) in the U.K., the Survey of Health, Ageing and Retirement in Europe (SHARE) in continental Europe, and other sister surveys in Asia and other regions. Similar to those surveys, JSTAR's questionnaire covers a wide variety of variables related to health, employment, economic status, family formation, and other life features. The unit of the sample of JSTAR at baseline is individuals aged 50 to 75 who were randomly chosen from household registration within each municipality.[7] If a respondent is married, selected questions are also asked of the spouse. JSTAR began collection of data in 2007 in five municipalities in the first wave, followed by four subsequent waves at two-year intervals.[8]

Among these waves, the second wave performed in 2009 on the individuals surveyed in five municipalities in the first wave contains a battery of questions on financial literacy. The questions include the relevant set of three questions: 1) understanding of compounded interest, 2) understanding of inflation and, 3) understanding of risk and diversification. In addition, the wave includes a related question on whether the respondent has ever studied accounting or economics. In the second wave, the total sample size is 2,852 persons.

HRS is the pioneer and the eldest sister in the field of international data collection and harmonization efforts on middle and older generations and provides a standard for sister surveys.[9] Implementation of the HRS survey started in 1992 in the

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[7] Yoshino et al. (2017) used a nonrandom and non-representative dataset.

[8] The total number of municipalities from the third wave is 10 and the total number of individuals in the sample is about 8,000 at baseline. The five municipalities in the first wave are Takikawa city, Sendai city, Adachi ward (metropolitan Tokyo), Kanazawa city, and Shirakawa town.

[9] The detailed description of the dataset is available at https://hrs.isr.umich.edu/about?_ga=2.94165525.941904344.1535601989-

U.S. and tracks the same people every two years. The size of the baseline sample is about 20,000 people who were randomly selected throughout the U.S. In terms of content, HRS covers a wide range of information that is also covered by JSTAR. Further, the timing of the surveys coincide. In 2010, HRS includes a module on financial literacy in which questions similar to those included in JSTAR in 2009 can be found. Note that the special module is asked of only a subset of the sample (one-tenth). The sample size is 1,473 persons.

A slight difference in the sampling unit between JSTAR and HRS is noted below. While JSTAR selects and surveys an individual in a household, HRS poses the financial literacy question to the couple in the household. Indeed, HRS provides information on financial literacy from both the husband and wife (or partners) in many cases. In contrast, JSTAR uses data from an individual (i.e., either husband or wife). Thus, we use HRS data from all individuals when examining the association between the level of financial literacy and a variety of covariates (henceforth, "U.S. full sample") but uses the data from only one spouse when examining the association between household asset allocation and the covariates. The choice of which spouse to ask is made based on the level of financial literacy; in other words, the individual who responded to the financial asset questions (i.e. the most financially knowledgeable in the household) is selected. The sample size of respondents to this question is reduced to 1,011 persons (henceforth, "investment behavior sample").

Another difference between JSTAR and HRS lies in the questions regarding asset holding. In JSTAR, if a respondent has a spouse (or a partner), the question regarding holding of each type of asset is asked separately of the respondent and the spouse. For this reason, we can acquire information on each respondent's "individual"

asset holding. On the other hand, HRS asks questions only of "household" level asset holdings, meaning that only information on asset holdings of a couple (in the case the respondent has a spouse) can be obtained. In other words, we cannot identify whether an asset is held by the respondent or his/her spouse (or both). For the sake of a Japan-U.S. comparison, we construct variables of household level asset holdings from JSTAR.[10]

Table 1 presents a simple average of each measure of financial literacy in Japan and the United States. Note that the HRS sample is limited to people aged between 52 and 79 which corresponds to the age of JSTAR respondents. At a glance, the level of financial literacy is much lower in Japan than that in the U.S. For example, Panel A shows that the proportion of correct responses to "compound interest" is 38.6% in Japan, which is substantially lower than that in the U.S. (71.8%). This is also the case for "inflation" in Panel B; the proportion of correct response is 38.7%, much lower than 82.4% in the U.S.; for "stock risk" in Panel C, the proportion of correct response is 30.9%, much lower than 66.4% in the U.S. It might be tempting to conclude that the level of financial literacy is lower in Japan, but we should be careful how to interpret these figures since the proportion of "Don't Know" or "Not Sure" is much higher in Japan. Indeed, the proportion of "incorrect" answers is larger in the U.S. than in Japan for all three questions.

Table 2 shows the summary statistics for the analysis below. While we report statistics from the Japan study and two sets of samples for the U.S. ("U.S. full sample" and "U.S. investment behavior sample"), we focus on the comparison between Japan and the U.S. full sample below. Household demographics show that

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[10] For the U.S., we use RAND HRS Detailed Imputation File 2014 (V2), released in February 2018, for the information on each type of asset holding.

the average age is 65.6 years old in Japan and 64.0 in the U.S. and each sex contributes to one half, though the male share is slightly lower in the U.S.. More than one half of the respondents were working at the time of the survey in Japan while the figure is less than 40% in the U.S. More than 80% were currently married in Japan but the proportion is lower at less than 70% in the U.S. As regards educational attainment, the proportion of senior high school graduates or less is three quarters in Japan and the proportion of university graduates or more is slightly larger than 10%. The attainment is higher in the U.S. than in Japan; the proportion of senior high school graduates or under is slightly less than one half and the proportion of university graduates or over is close to one quarter. Looking at the cognitive measure, the proportion of correct answers to serial seven is 45.3% and the average number of 10 word instant recall is 4.2 words in Japan. The proportion of correct responses to serial seven is slightly lower in the U.S. while the number of word recall is higher. The proportion of those who have ever studied accounting or economics is slightly more than 10% in Japan while the figure in the U.S. is three-fold (34.2%). Turning to household income, the dominant bracket of household income is 3 to 5 million yen (18.7%), followed by 2 to 3 million yen (12.8%) in Japan while the dominant bracket is 30,000-50,000 dollars and occupies 20% in the U.S. Lastly, household asset holding reveals that the proportion of risky financial instruments is low in both countries; bond holders make up about 20% and stockholders occupy less than 20% in Japan. The proportion of bond holders is much smaller in the U.S. but that of stockholders is larger, exceeding 20%. The lower share of bond holders may be due to the different definition or perception on the part of respondents. Indeed, the proportion of CD/government saving bonds/T-bills, which are not included in bonds, is 16.0% in the U.S. The share of either bond or stockholders is 26.9% in Japan and 23.1% in the U.S. On the flip

side, about 90% have saving accounts in Japan, suggesting that Japanese middle and older generations are generally conservative in asset investment. The proportion of bank account holders is lower at 77.1% in the U.S. but it is noted that more than one-third of households have IRA accounts. In Japan, IRA-type accounts were scarcely available at the time of the second wave survey in 2009. Therefore, no corresponding question regarding this type of asset was included in JSTAR in 2009.

3. Determinants of financial literacy

In this section, we examine determinants of the level of financial literacy by regression analysis. The basic specification for the analysis is described as follows.

(1) $FL_i = \beta X_i + \varepsilon_i$

where FL_i measures the level of financial literacy referring to the number of correct answers to the set of three financial literacy questions. X_i is a vector of variables related to individuals including age, sex, work status, marital status, educational attainment, cognitive skills (serial seven and instant word recall), taking coursework in economics or accounting, and individual income. Moreover, dummy variables to indicate each region are also included.

Columns (1) and (2) in Table 3 report the estimated coefficients using OLS and ordered probit model for Japan and columns (3) and (4) report for the U.S. First, looking at individual characteristics, the coefficient on age is negative and significant (not significant in (4)) and that on sex is positive and significant, showing that the level of financial literacy declines along with age and is higher for males. These are common and consistent with findings in previous studies. The coefficients on current

work status and marital status are not significant. The coefficients are significant and larger for higher educational attainment, which again conforms to the result in previous studies. The coefficients on each school attainment level are positive and significant (the default case is primary/junior high school graduates) for both countries, but it is noted that the gradient is steeper in the U.S. The coefficients are positive and significant for serial seven and word recall again for both countries. This is natural since respondents with higher cognitive skills are more likely to retain a higher level of financial literacy. This is also the case for taking economics/accounting coursework and the coefficients are positive and generally significant. Tuning to household income, the size of the coefficient is generally larger for higher income, showing that higher earners are more likely to enjoy a higher level of financial literacy. This pattern is again observed in both countries with minor differences; the coefficients are significant only for 3-5 million yen and more than 10 million yen brackets in Japan while they are significant for all the U.S. brackets Interestingly, the size of the coefficients peaks out in the 100,000-200,000 dollar bracket in the U.S.

In sum, we found a higher level of financial literacy in individuals who are younger, male, more educated, with higher cognitive skills or a higher annual income. These patterns are confirmed in both estimation methods and in both countries.[11]

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[11] We present the estimation results by adding some new covariates in Appendix 1 which are available only in Japan. First, the coefficient on risk preference is negative and significant for the 10-30% range and positive and significant for time discounting for the 1-6% range, showing that risk averse or slightly patient individuals are more likely to have a higher level of financial literacy. Second, the coefficients on an incidence of depression symptoms by the CES-D measure are negative and significant, showing that respondents with depression symptoms are likely to have lower financial literacy. Third, the coefficients on the subjective probability to live to age 85 are now positive and significant, showing that a subjective assessment of a longer life time horizon is linked to a higher level of financial literacy. We obtain the similar pattern on the coefficients if we use individual income instead of household income in Japan (Shimizutani and Yamada 2018).

4. Financial literacy and household asset allocation

Next, we aim to understand the level of financial literacy that associates with household asset holding. By "household" assets, we mean bonds, stocks, bank accounts (deposits) in the name of either the respondent or his/her spouse (or partner) both in Japan and the U.S. or CD/government saving bond/T-bill or Individual Retirement Account (IRA) in the U.S. A natural speculation is that higher a level of financial literacy is associated with a greater variety of financial instruments to invest. The basic specification for the analysis is described as follows.

(2) $A_i = \alpha FL_i + \beta X_i + \varepsilon_i$

where A_i measures household-level asset allocation of individual i. The dependent variable is an indicator variable to take one if a household holds non-zero financial asset by type. The main independent variable FL_i is the level of financial literacy of the most financially knowledgeable in the household measured by the number of correct answers to the three questions, which connect financial literacy to household asset holding. The other covariates (a vector of X_i) refer to individual characteristics which are exactly the same in specification (1): age, sex, work status, marital status, educational attainment, cognitive skills (serial seven and word recall), taking coursework in economics or accounting, household income, and dummy variables to indicate each region.

We present the results using OLS (or linear probability model) and logit estimation. In what follows, we will focus on the coefficients of the main variable, the level of financial literacy. Table 4 reports the results for bond holding in Japan (Columns (1) and (2)) and the U.S. (Columns (3) and (4)). The coefficients on

financial literacy are positive and significant, showing that financial literacy is indeed associated with bond holding. In addition, we observe that older, non-working individuals with higher educational attainment or higher household income level are associated with bond holding in both Japan and the U.S. Table 5 shows the results for stock holding in Japan (Columns (1) and (2)) and the U.S. (Columns (3) and (4)). The coefficients on financial literacy are positive and significant, again showing that financial literacy is associated with stock holding. Interestingly, the size of the coefficient on financial literacy is smaller in stock holding than bond holding in Japan but the pattern is reverse in the U.S. The coefficients on other covariates are generally the same as in the bond-holding.[12]

Table 6 reports the estimation results for bank account holders in Japan (Columns (1) and (2)) and the U.S. (Columns (3) and (4)). Contrary to the results on bonds and stocks, the coefficients are contrasting between Japan and the U.S. The coefficients on financial literacy are not significant in Japan but positive and significant in the U.S. probably because bank account holders are very prevalent in Japan. The coefficient on age is not significant in Japan but is positive and significant in the U.S. due to the same reason. In contrast, the coefficients on being married are positive and significant in Japan but they are not significant in the U.S. While the coefficients on each educational attainment are positive and significant in both countries, the gradient along education is steeper in the U.S. than in Japan.

Table 7 presents the results for CD/government saving bond/T-bill, all of which are considered to be safe securities, and Individual Retirement account. Those results

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[12] Table 2 shows the proportion of bond holding is very different between Japan and the U.S. As discussed, the difference may come from a different definition or perception of respondents. Thus, we perform the same analyses when the dependent variable takes 1 if a respondent is a bond and/or stockholder and 0 otherwise. Appendix 2 shows the results. The coefficients on financial literacy are positive and significant and those on other covariates are generally the same.

are only available in the U.S. Columns (1) and (2) show the estimated coefficients for safe security holding (CD/government saving bond/T-bill). Interestingly, the coefficients on financial literacy (the number of correct answers) is not significant, showing that financial literacy is not associated with holding of those securities. The coefficient on age is positive and significant and that on current work status is negative and significant, showing that older or non-working individuals are more likely to have those assets. Most of the coefficients on educational attainment are positive and significant but the gradient is much flatter. Moreover, most of those on household income are not significant, which also contrasts with other types of assets. In contrast, Columns (3) and (4) show that the coefficients on financial literacy are positive and significant, showing that higher level of financial literacy is associated with IRA holding. In addition, older or currently married individuals are more likely to have IRA accounts and the gradient along educational attainment is significant and steeper than safe securities. This pattern is further confirmed by Columns (5) to (7). The dependent variable takes 2 if a respondent holds an IRA account and invests money, 1 if a respondent holds an IRA account but does not invest money and 0 if a respondent does not hold an IRA account. The coefficient on financial literacy is positive and significant if holding and investing in an IRA account.

In sum, financial literacy is associated with resultant asset allocation; households with a higher literacy are more likely to invest in bonds or stocks, apart from their savings. These patterns are commonly observed in Japan and the U.S. Moreover, financial literacy is not associated with safe security holding but with IRA account investment in the U.S.[13]

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[13] We also conduct regression analysis using the principal component of the answers of the three questions as a variable of financial literacy and the results are qualitatively the same. In addition, given the large portion of "Don't Know/Not Sure" and "Refused to answer" especially in JSTAR, we created a dummy corresponding to the answers and conduct the principal component analysis.

5. Conclusion

We examine and compare the levels and determinants of financial literacy as well as its association to asset allocation among middle and older generations in Japan and the U.S. In both countries, we found a higher level of financial literacy in individuals who are younger, male, more educated, have higher cognitive skills, or a higher level of annual income, results which conform to findings by previous studies. Moreover, we found that the level of financial literacy is significantly associated with individual asset holding and the impact is larger for bond and stock holdings than for savings deposits.

Financial literacy holds growing interest for managing assets/savings during the longer retirement period currently experienced in rapidly aging countries, a societal feature particularly relevant to Japan. It is interesting to find the same pattern in the determinants of financial literacy and the association between financial literacy and asset holding in Japan and the U.S. since it is widely perceived that Japan lags in financial education and the U.S. is more advanced. Further research should develop in two directions. One direction is to investigate a causal relationship between financial literacy and asset holding. Based on the examination, the other direction of further study should put the cases of Japan and the U.S. in an international perspective to extract policy implications. While improvement of financial literacy in middle and older generations seems to be a common policy agenda, consensus on concrete policy intervention is lacking. One reason is that there are too many factors to determine the level of financial literacy and the effectiveness of intervention, which depends on

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In other words, we performed a principal component analysis for six variables to create a variable of financial literacy, following van Rooij et al. (2011). Again, the qualitative results are the same. The results are available upon request from the authors.

policy instrument, is ambiguous. An international research project using a comparable

dataset will contribute toward revelation of important elements that leads to

formulation of policy to raise financial literacy in each country.

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Table 1 Financial literacy in Japan with a comparison with the U.S.

A. Compound interest
"Suppose you had $100 in a savings account and the interest rate was 2% per year.
After 5 years, how much do you think you would have in the account if you left the money to
grow? More than $102, exactly $102, or less than $102?"

	JSTAR		HRS (52<age<79)	
	Freq.	Percent	Freq.	Percent
More than $102	1100	38.57	1,057	71.76
Exactly $102	177	6.21	205	13.92
Less than $102	196	6.87	148	10.05
Don't Know/Not Sure	1365	42.56	57	3.87
Refused to answer	165	5.79	6	0.41

B. Inflation
"Imagine that the interest rate on your savings account was 1% per year and inflation was 2%
per year. After 1 year, would you be able to buy more than today, exactly the same as today, or
less than today with the money in this account?"

	JSTAR		HRS (52<age<79)	
	Freq.	Percent	Freq.	Percent
More than today	126	4.42	81	5.5
Exactly the same as today	83	2.91	126	8.55
Less than today	1103	38.67	1213	82.35
Don't Know/Not Sure	1365	47.86	47	3.19
Refused to answer	175	6.14	6	0.41

C. Stock risk
"Do you think that the following statement is true or false: buying a single company stock usually
provides a safer return than a stock mutual fund?"

	JSTAR		HRS (52<age<79)	
	Freq.	Percent	Freq.	Percent
TRUE	249	8.73	244	16.56
FALSE	881	30.89	978	66.4
Don't Know/Not Sure	1536	53.86	241	16.36
Refused to answer	186	6.52	10	0.68

(Note) The questionniare in C differs slightly between HRS and JSTAR.
HRS specifies "a single company stock usually...." in HRS. JSTAR does not specify a SINGLE stock
company and refers to "always" instead of "usually."

Table 2 Descriptive statistics

Variables		Japan					US: full sample					US: investment behavior sample			
	N Obs.	Average	S.D.	Min	Max	N Obs.	Average	S.D.	Min	Max	N Obs.	Average	S.D.	Min	Max
Compound interest (=1 if correct, 0 otherwise)	2,852	0.3857	0.4868	0	1	1,436	0.7187	0.4498	0	1	1,011	0.7181	0.4501	0	1
Inflation (=1 if correct, 0 otherwise)	2,852	0.3867	0.4871	0	1	1,436	0.8224	0.3823	0	1	1,011	0.8259	0.3794	0	1
Stock risk (=1 if correct, 0 otherwise)	2,852	0.3089	0.4621	0	1	1,436	0.6643	0.4724	0	1	1,011	0.6568	0.475	0	1
# of correct answers	2,852	1.0813	1.0925	0	3	1,436	2.2054	0.8531	0	3	1,011	2.2008	0.8573	0	3
age (years)	2,852	65.6462	6.9737	52	79	1,473	63.999	8.1557	52	79	1,011	64.26	8.2461	52	79
sex (=1 if male, 0 otherwise)	2,852	0.5116	0.5000	0	1	1,473	0.4508	0.4977	0	1	1,011	0.4728	0.4995	0	1
work (=1 if working, 0 otherwise)	2,852	0.5263	0.4994	0	1	1,473	0.3917	0.4883	0	1	1,011	0.3887	0.4877	0	1
work: missing dummy	2,852	0.0021	0.0458	0	1	-	-	-	-	-	-	-	-	-	-
current_married (=1 if yes, 0 otherwise)	2,852	0.8079	0.3941	0	1	1,473	0.6836	0.4652	0	1	1,011	0.5401	0.4986	0	1
current_married: missing dummy	2,852	0.0021	0.0458	0	1	-	-	-	-	-	-	-	-	-	-
primary/junior high schoool	2,852	0.3527	0.4779	0	1	1,473	0.1894	0.392	0	1	1,011	0.1968	0.3978	0	1
senior_high	2,852	0.4018	0.4904	0	1	1,473	0.3055	0.4608	0	1	1,011	0.2918	0.4548	0	1
junior_college	2,852	0.1224	0.3278	0	1	1,473	0.2546	0.4358	0	1	1,011	0.2532	0.4351	0	1
university	2,852	0.1073	0.3095	0	1	1,473	0.1358	0.3427	0	1	1,011	0.1464	0.3537	0	1
graduate	2,852	0.0074	0.0855	0	1	1,473	0.1093	0.3121	0	1	1,011	0.1068	0.309	0	1
Education variable: missing dummy	2,852	0.0042	0.0647	0	1	1,473	0.0054	0.0735	0	1	1,011	0.0049	0.0702	0	1
Serial 7 (=1 if correct, 0 otherwise)	2,852	0.4530	0.4979	0	1	1,473	0.4297	0.4952	0	1	1,011	0.4253	0.4946	0	1
Instant word recall	2,852	4.2107	2.4860	0	9	1,473	5.4786	1.6676	0	10	1,011	5.4738	1.6775	0	10
ever studied accounting/economics? (=1 if yes, 0 otherwise)	2,852	0.1112	0.3144	0	1	1,473	0.3415	0.4744	0	1	1,011	0.3452	0.4757	0	1
ever studied accounting/economics?: missing dummy	2,852	0.1024	0.3032	0	1	1,473	0.002	0.0451	0	1	1,011	0.003	0.0544	0	1

Table 2 Descriptive statistics (continued)

Variables	Japan					US: full sample					US: investment behavior sample				
	N Obs.	Average	S.D.	Min	Max	N Obs.	Average	S.D.	Min	Max	N Obs.	Average	S.D.	Min	Max
Income (household): 0 yen	2,852	0.0487	0.2154	0	1										
Income (household): 1-1million yen	2,852	0.0761	0.2652	0	1										
Income (household): 1-2 million yen	2,852	0.1210	0.3261	0	1										
Income (household): 2-3 million yen	2,852	0.1283	0.3345	0	1										
Income (household): 3-5 million yen	2,852	0.1872	0.3902	0	1										
Income (household): 5-7 million yen	2,852	0.0719	0.2583	0	1										
Income (household): 7-10 million yen	2,852	0.0435	0.2040	0	1										
Income (household): more than 10 million yen	2,852	0.0270	0.1621	0	1										
Income (household): missing dummy	2,852	0.2963	0.4567	0	1										
Income (household): $0						1,473	0.0136	0.1158	0	1	1,011	0.0158	0.1249	0	1
Income (household): $1-$10,000						1,473	0.0774	0.2673	0	1	1,011	0.1009	0.3013	0	1
Income (household): $10,000-$20,000						1,473	0.1494	0.3566	0	1	1,011	0.1879	0.3909	0	1
Income (household): $20,000-$30,000						1,473	0.1161	0.3204	0	1	1,011	0.1266	0.3327	0	1
Income (household): $30,000-$50,000						1,473	0.203	0.4024	0	1	1,011	0.1879	0.3909	0	1
Income (household): $50,000-$70,000						1,473	0.1317	0.3383	0	1	1,011	0.1157	0.3201	0	1
Income (household): $70,000-$100,000						1,473	0.1283	0.3345	0	1	1,011	0.1177	0.3224	0	1
Income (household): $100,000-$200,000						1,473	0.1297	0.3361	0	1	1,011	0.1058	0.3078	0	1
Income (household): more than $200,000						1,473	0.0509	0.2199	0	1	1,011	0.0415	0.1996	0	1
Having bonds (household level)	2,430	0.20206	0.4016	0	1	1,473	0.038	0.1913	0	1	1,011	0.0366	0.1879	0	1
Having stocks (household level)	2,412	0.15672	0.3636	0	1	1,473	0.2186	0.4134	0	1	1,011	0.181	0.3852	0	1
Having bond or/and stocks (household level)	2,397	0.26867	0.4434	0	1	1,473	0.2315	0.4219	0	1	1,011	0.1929	0.3948	0	1
Having bank accounts (household level)	2,412	0.91791	0.2746	0	1	1,473	0.7712	0.4202	0	1	1,011	0.7498	0.4334	0	1
Having CD/government saving bond/T-bill (household level)						1,473	0.1595	0.3663	0	1	1,011	0.1405	0.3476	0	1
Having IRA accounts (household level)						1,473	0.3822	0.4861	0	1	1,011	0.3373	0.473	0	1
IRA account without investment (household level)						1,473	0.131	0.3375	0	1	1,011	0.1296	0.336	0	1
IRA account invested in stocks or mutual funds						1,473	0.2512	0.4338	0	1	1,011	0.2077	0.4059	0	1

Table 3 Financial literacy and associated covariates

	Japan			US	
	(1)	(2)		(3)	(4)
	OLS	Ordered probit		OLS	Ordered probit
age	-0.015**	-0.017***	age	-0.004*	-0.005
	[0.004]	[0.004]		[0.002]	[0.003]
sex (=1 if male, 0 otherwise)	0.241***	0.279***	sex (=1 if male, 0 otherwise)	0.244***	0.377***
	[0.046]	[0.050]		[0.041]	[0.054]
work (=1 if working, 0 otherwise)	-0.024	-0.013	work (=1 if working, 0 otherwise)	0.027	0.048
	[0.057]	[0.065]		[0.040]	[0.060]
work: missing dummy	-0.115	-0.205	work: missing dummy		
	[0.205]	[0.309]			
current_married	-0.064	-0.057	current_married	0.029	0.031
	[0.036]	[0.047]		[0.045]	[0.069]
current_married: missing dummy	-0.504	-0.657	current_married: missing dummy		
	[0.378]	[0.599]			
Education category (default: primary/junior high schoool)			Education category (default: primary/junior high schoool)		
senior_high	0.154**	0.178***	senior_high	0.189***	0.227***
	[0.049]	[0.055]		[0.039]	[0.047]
junior_college	0.194*	0.220***	junior_college	0.274***	0.330***
	[0.084]	[0.084]		[0.069]	[0.096]
university	0.382**	0.419***	university	0.470***	0.691***
	[0.118]	[0.120]		[0.060]	[0.081]
graduate	0.413***	0.437***	graduate	0.502***	0.756***
	[0.087]	[0.068]		[0.047]	[0.094]
Education variable: missing dummy	-0.055	-0.127	Education variable: missing dummy	0.168	0.141
	[0.102]	[0.166]		[0.457]	[0.646]
Serial 7 (=1 if correct, 0 otherwise)	0.148***	0.163***	Serial 7 (=1 if correct, 0 otherwise)	0.162***	0.254***
	[0.022]	[0.026]		[0.042]	[0.061]
Word recall	0.091***	0.109***	Word recall	0.054***	0.081***
	[0.013]	[0.015]		[0.012]	[0.018]
ever studied accounting/economics (=1 if yes, 0 otherwise)	0.221	0.245**	ever studied accounting/economics? (=1 if yes, 0 otherwise)	0.124**	0.213***
	[0.110]	[0.112]		[0.039]	[0.067]
ever studied accounting/economics missing dummy	0.048	0.030	ever studied accounting/economics? missing dummy	0.144	0.171
	[0.032]	[0.049]		[0.346]	[0.483]
Household income category (default: 0 yen)			Household income category (default: $0)		
Income: 1-1million yen	-0.014	-0.020	income: $1-$10,000	0.254	0.296
	[0.168]	[0.211]		[0.196]	[0.232]
Income: 1-2 million yen	0.119	0.130	income: $10,000-$20,000	0.306*	0.358*
	[0.063]	[0.081]		[0.168]	[0.183]
Income: 2-3 million yen	0.127	0.135	income: $20,000-$30,000	0.383*	0.455*
	[0.144]	[0.166]		[0.206]	[0.234]
Income: 3-5 million yen	0.358*	0.369**	income: $30,000-$50,000	0.362*	0.420**
	[0.141]	[0.161]		[0.180]	[0.195]
income: 5-7 million yen	0.379	0.374*	income: $50,000-$70,000	0.384*	0.439*
	[0.178]	[0.205]		[0.202]	[0.225]
income: 7-10 million yen	0.300	0.299	income: $70,000-$100,000	0.507**	0.655**
	[0.158]	[0.188]		[0.218]	[0.255]
income: more than 10 million yen	0.508*	0.526**	income: $100,000-$200,000	0.518*	0.695**
	[0.214]	[0.248]		[0.240]	[0.312]
income: missing dummy	-0.066	-0.102	income: more than $200,000	0.467*	0.687***
	[0.077]	[0.096]		[0.215]	[0.256]
Constant	1.409***		Constant	1.241***	
	[0.255]			[0.292]	
Observations	2,852	2,852	Observations	1,473	1,473
R-squared	0.205		R-squared	0.194	
Region dummies	Yes	Yes	Region dummies	Yes	Yes

The dependent variable is the number of correct answers. Standard errors are clustered at regional level. *** p<0.01, ** p<0.05, * p<0.1

Table 4 Financial literacy and investment behaviors: Bond

	Japan			US	
	(1) OLS	(2) Logit		(3) OLS	(4) Logit
Number of correct answers	0.051***	0.048***	Number of correct answers	0.013**	0.023***
	[0.007]	[0.008]		[0.006]	[0.004]
age	0.003*	0.003***	age	0.002**	0.002***
	[0.001]	[0.001]		[0.001]	[0.001]
sex (=1 if male, 0 otherwise)	-0.047*	-0.047***	sex (=1 if male, 0 otherwise)	0.001	0.002
	[0.017]	[0.011]		[0.007]	[0.009]
work (=1 if working, 0 otherwise)	-0.065*	-0.062***	work (=1 if working, 0 otherwise)	-0.020***	-0.020***
	[0.027]	[0.019]		[0.006]	[0.008]
work: missing dummy	-0.106*		work: missing dummy		
	[0.047]				
current_married	-0.001	-0.003	current_married	0.005	0.006
	[0.017]	[0.018]		[0.010]	[0.012]
current_married: missing dummy	-0.146***		current_married: missing dummy		
	[0.016]				
Education category (default: primary/junior high schoool)			Education category (default: primary/junior high schoool)		
senior_high	0.078**	0.095***	senior_high	-0.013	-0.004
	[0.023]	[0.031]		[0.013]	[0.029]
junior_college	0.096**	0.107***	junior_college	0.000	0.014
	[0.029]	[0.035]		[0.012]	[0.027]
university	0.064*	0.080***	university	0.020*	0.035*
	[0.023]	[0.017]		[0.011]	[0.020]
graduate	0.290*	0.217***	graduate	0.072**	0.054***
	[0.122]	[0.068]		[0.029]	[0.019]
Education variable: missing dummy	0.198	0.188**	Education variable: missing dummy	0.007	
	[0.108]	[0.081]		[0.017]	
Serial 7 (=1 if correct, 0 otherwise)	0.002	0.007	Serial 7 (=1 if correct, 0 otherwise)	0.002	-0.001
	[0.012]	[0.013]		[0.007]	[0.005]
Word recall	-0.004	-0.005*	Word recall	0.005*	0.005*
	[0.003]	[0.003]		[0.003]	[0.003]
ever studied accounting/economics? (=1 if yes, 0 otherwise)	0.113***	0.086***	ever studied accounting/economics? (=1 if yes, 0 otherwise)	-0.011	-0.011
	[0.014]	[0.007]		[0.019]	[0.014]
ever studied accounting/economics? missing dummy	-0.022	-0.023	ever studied accounting/economics? missing dummy	-0.035	
	[0.030]	[0.037]		[0.036]	
Household income category (default: 0 yen)			Household income category (default: less than $40000)		
income: 1-1million yen	0.048	0.056***	income: $40,000-$60,000	0.048**	0.057***
	[0.024]	[0.019]		[0.017]	[0.012]
income: 1-2 million yen	0.055*	0.066**	income: $60,000-$80,000	0.022	0.032***
	[0.024]	[0.027]		[0.016]	[0.008]
income: 2-3 million yen	0.059*	0.066**	income: $80,000-$100,000	0.010	0.020
	[0.024]	[0.031]		[0.021]	[0.023]
income: 3-5 million yen	0.095***	0.102***	income: $100,000-$200,000	0.066**	0.059***
	[0.009]	[0.018]		[0.026]	[0.014]
income: 5-7 million yen	0.129**	0.130***	income: more than $200,000	0.152*	0.087***
	[0.030]	[0.025]		[0.078]	[0.020]
income: 7-10 million yen	0.222**	0.194***			
	[0.049]	[0.056]			
income: more than 10 million yen	0.244***	0.213***			
	[0.045]	[0.016]			
income: missing dummy	0.036**	0.039**			
	[0.012]	[0.017]			
Constant	-0.078		Constant	-0.192***	
	[0.084]			[0.054]	
Observations	2,430	2,420	Observations	1,011	1,001
R-squared	0.119		R-squared	0.096	
Region dummies	Yes	Yes	Region dummies	Yes	Yes

The dependent variable takes 1 for a bond holder and 0 otherwise. Standard errors are clustered at regional level.
Marginal effects are reported for logit models. *** p<0.01, ** p<0.05, * p<0.1

Table 5 Financial literacy and investment behaviors: Stock

	Japan			US	
	(1) OLS	(2) Logit		(3) OLS	(4) Logit
Number of correct answers	0.032***	0.029***	Number of correct answers	0.040***	0.049***
	[0.005]	[0.002]		[0.009]	[0.014]
age	0.003	0.003**	age	0.005**	0.005***
	[0.001]	[0.001]		[0.002]	[0.002]
sex (=1 if male, 0 otherwise)	-0.012	-0.010	sex (=1 if male, 0 otherwise)	0.006	0.002
	[0.013]	[0.015]		[0.027]	[0.026]
work (=1 if working, 0 otherwise)	-0.041*	-0.041***	work (=1 if working, 0 otherwise)	-0.055**	-0.048***
	[0.017]	[0.014]		[0.020]	[0.017]
work: missing dummy	-0.099*		work: missing dummy		
	[0.037]				
current_married	0.019	0.019	current_married	-0.009	-0.015
	[0.024]	[0.029]		[0.018]	[0.018]
current_married: missing dummy	-0.081**		current_married: missing dummy		
	[0.025]				
Education category (default: primary/junior high schoool)			Education category (default: primary/junior high schoool)		
senior_high	0.078***	0.109***	senior_high	0.028	0.077
	[0.016]	[0.018]		[0.028]	[0.049]
junior_college	0.123**	0.146***	junior_college	0.057	0.108**
	[0.035]	[0.028]		[0.042]	[0.053]
university	0.176**	0.171***	university	0.134**	0.166***
	[0.047]	[0.015]		[0.042]	[0.049]
graduate	0.306*	0.225***	graduate	0.260***	0.229***
	[0.111]	[0.037]		[0.033]	[0.041]
Education variable: missing dummy	0.140*	0.154***	Education variable: missing dummy	-0.007	
	[0.065]	[0.045]		[0.046]	
Serial 7 (=1 if correct, 0 otherwise)	-0.016	-0.012	Serial 7 (=1 if correct, 0 otherwise)	0.019	0.012
	[0.012]	[0.011]		[0.023]	[0.022]
Word recall	-0.003	-0.003**	Word recall	0.006	0.004
	[0.002]	[0.001]		[0.007]	[0.006]
ever studied accounting/economics? (=1 if yes, 0 otherwise)	0.049**	0.033***	ever studied accounting/economics? (=1 if yes, 0 otherwise)	-0.020	-0.016
	[0.017]	[0.010]		[0.038]	[0.036]
ever studied accounting/economics? missing dummy	-0.066*	-0.095	ever studied accounting/economics? missing dummy	-0.051	
	[0.024]	[0.058]		[0.058]	
Household income category (default: 0 yen)			Household income category (default: $0)		
income: 1-1million yen	0.056*	0.055**	income: $1-$10,000	-0.032	-0.037
	[0.024]	[0.026]		[0.037]	[0.066]
income: 1-2 million yen	-0.008	-0.013	income: $10,000-$20,000	-0.052	-0.061
	[0.028]	[0.036]		[0.040]	[0.078]
income: 2-3 million yen	0.012	0.010	income: $20,000-$30,000	0.009	0.032
	[0.034]	[0.040]		[0.045]	[0.076]
income: 3-5 million yen	0.051***	0.050***	income: $30,000-$50,000	0.089**	0.109*
	[0.005]	[0.015]		[0.028]	[0.061]
income: 5-7 million yen	0.128***	0.105***	income: $50,000-$70,000	-0.001	0.032
	[0.020]	[0.030]		[0.049]	[0.085]
income: 7-10 million yen	0.120	0.096**	income: $70,000-$100,000	0.133**	0.138*
	[0.068]	[0.047]		[0.059]	[0.080]
income: more than 10 million yen	0.233***	0.166***	income: $100,000-$200,000	0.169***	0.171**
	[0.020]	[0.023]		[0.053]	[0.076]
income: missing dummy	0.017	0.013	income: more than $200,000	0.332***	0.246***
	[0.025]	[0.031]		[0.077]	[0.062]
Constant	-0.132		Constant	-0.424***	
	[0.081]			[0.117]	
Observations	2,412	2,403	Observations	1,011	1,003
R-squared	0.110		R-squared	0.174	
Region dummies	Yes	Yes	Region dummies	Yes	Yes

The dependent variable takes 1 for a stock holder and 0 otherwise. Standard errors are clustered at regional level.
Marginal effects are reported for logit models. *** p<0.01, ** p<0.05, * p<0.1

Table 6 Financial literacy and investment behaviors: Bank accounts

	Japan			US	
	(1)	(2)		(3)	(4)
	OLS	Logit		OLS	Logit
Number of correct answers	0.005	0.005	Number of correct answers	0.023*	0.023**
	[0.005]	[0.006]		[0.011]	[0.011]
age	0.001	0.001	age	0.005**	0.005***
	[0.001]	[0.001]		[0.002]	[0.002]
sex (=1 if male, 0 otherwise)	-0.005	-0.005	sex (=1 if male, 0 otherwise)	-0.023	-0.027*
	[0.011]	[0.011]		[0.016]	[0.015]
work (=1 if working, 0 otherwise)	-0.004	-0.007	work (=1 if working, 0 otherwise)	-0.040	-0.053*
	[0.012]	[0.011]		[0.028]	[0.028]
work: missing dummy	0.200***	-	work: missing dummy		
	[0.026]				
current_married	0.059**	0.044***	current_married	-0.029	-0.027
	[0.020]	[0.015]		[0.017]	[0.020]
current_married: missing dummy	0.143***	-	current_married: missing dummy		
	[0.029]				
Education category (default: primary/junior high schoool)			Education category (default: primary/junior high schoool)		
senior_high	0.056*	0.049***	senior_high	0.225***	0.154***
	[0.021]	[0.014]		[0.029]	[0.017]
junior_college	0.058*	0.050*	junior_college	0.267***	0.202***
	[0.024]	[0.027]		[0.037]	[0.023]
university	0.046*	0.037***	university	0.283***	0.208***
	[0.017]	[0.012]		[0.034]	[0.029]
graduate	0.093***	-	graduate	0.323***	0.295***
	[0.020]			[0.048]	[0.075]
Education variable: missing dummy	0.138***	-	Education variable: missing dummy	0.123	0.106
	[0.019]			[0.486]	[0.307]
Serial 7 (=1 if correct, 0 otherwise)	0.023**	0.023***	Serial 7 (=1 if correct, 0 otherwise)	0.029*	0.036**
	[0.005]	[0.008]		[0.014]	[0.015]
Word recall	0.005	0.005*	Word recall	0.014	0.016
	[0.003]	[0.003]		[0.011]	[0.011]
ever studied accounting/economics?	0.018	0.027*	ever studied accounting/economics?	-0.043*	-0.054**
(=1 if yes, 0 otherwise)	[0.011]	[0.016]	(=1 if yes, 0 otherwise)	[0.022]	[0.024]
ever studied accounting/economics?	0.025	0.023	ever studied accounting/economics?	0.006	-0.039
missing dummy	[0.039]	[0.041]	missing dummy	[0.389]	[0.249]
Household income category (default: 0 yen)			Household income category (default: $0)		
income: 1-1million yen	0.102**	0.061***	income: $1-$10,000	0.029	-0.004
	[0.035]	[0.023]		[0.115]	[0.078]
income: 1-2 million yen	0.063***	0.030***	income: $10,000-$20,000	0.215*	0.111*
	[0.013]	[0.003]		[0.102]	[0.064]
income: 2-3 million yen	0.125***	0.086***	income: $20,000-$30,000	0.249	0.136
	[0.024]	[0.008]		[0.151]	[0.099]
income: 3-5 million yen	0.113**	0.074***	income: $30,000-$50,000	0.416**	0.305***
	[0.038]	[0.024]		[0.143]	[0.094]
income: 5-7 million yen	0.153***	0.155***	income: $50,000-$70,000	0.371**	0.242**
	[0.022]	[0.027]		[0.140]	[0.096]
income: 7-10 million yen	0.150**	0.142***	income: $70,000-$100,000	0.435**	0.352**
	[0.038]	[0.049]		[0.153]	[0.138]
income: more than 10 million yen	0.159***	0.182**	income: $100,000-$200,000	0.437***	0.333***
	[0.034]	[0.082]		[0.137]	[0.093]
income: missing dummy	0.106**	0.064***	income: more than $200,000	0.430***	0.334***
	[0.031]	[0.013]		[0.135]	[0.113]
Constant	0.608***		Constant	-0.094	
	[0.057]			[0.124]	
Observations	2,412	2,373	Observations	1,011	980
R-squared	0.055		R-squared	0.270	
Region dummies	Yes	Yes	Region dummies	Yes	Yes

The dependent variable takes 1 for a bank account holder and 0 otherwise. Standard errors are clustered at regional level.
Marginal effects are reported for logit models. *** p<0.01, ** p<0.05, * p<0.1

Table 7 Financial literacy and investment behaviors: CD/government saving bond/T-bill, Individual Retirement Account (IRA): US

VARIABLES	(1) OLS CD/government saving bond/T-bill =1 if invested	(2) Logit CD/government saving bond/T-bill =1 if invested	(3) OLS IRA =1 if having IRA account	(4) Logit IRA =1 if having IRA account	(5) Multinomial logit Not having IRA account (Base category)	(6) IRA account without investment	(7) IRA account invested in stocks or mutual funds
Number of correct answers	0.022	0.023	0.043**	0.042**		-0.090	0.623***
	[0.015]	[0.018]	[0.018]	[0.019]		[0.141]	[0.140]
age	0.005***	0.006***	0.010***	0.010***		0.077***	0.046***
	[0.001]	[0.001]	[0.002]	[0.002]		[0.016]	[0.010]
sex (=1 if male, 0 otherwise)	-0.026	-0.029*	-0.009	-0.010		-0.309**	0.129
	[0.017]	[0.016]	[0.031]	[0.031]		[0.133]	[0.253]
work (=1 if working, 0 otherwise)	-0.038***	-0.028**	-0.046	-0.036		0.119	-0.466*
	[0.012]	[0.013]	[0.034]	[0.035]		[0.213]	[0.256]
current_married	0.028	0.025	0.096***	0.090***		0.653***	0.432**
	[0.016]	[0.017]	[0.025]	[0.024]		[0.156]	[0.182]
Education category (default: primary/junior high schoool)							
senior_high	0.071***	0.098***	0.108**	0.155***		0.894***	0.995*
	[0.018]	[0.030]	[0.037]	[0.049]		[0.255]	[0.585]
junior_college	0.028	0.056	0.125**	0.173***		0.923***	1.180**
	[0.024]	[0.035]	[0.050]	[0.055]		[0.278]	[0.587]
university	0.075*	0.102**	0.254***	0.275***		0.875*	2.130***
	[0.041]	[0.046]	[0.067]	[0.067]		[0.490]	[0.643]
graduate	0.083**	0.100***	0.300***	0.304***		1.117***	2.315***
	[0.037]	[0.037]	[0.047]	[0.044]		[0.348]	[0.482]
Education variable: missing dummy	0.024		-0.002			-11.558***	-11.098***
	[0.036]		[0.081]			[0.756]	[0.598]
Serial 7 (=1 if correct, 0 otherwise)	0.032*	0.027**	0.077**	0.064***		0.541**	0.245
	[0.018]	[0.016]	[0.027]	[0.023]		[0.225]	[0.187]
Word recall	0.008	0.006	0.016*	0.014**		0.044	0.116**
	[0.005]	[0.005]	[0.008]	[0.007]		[0.040]	[0.055]
ever studied accounting/economics? (=1 if yes, 0 otherwise)	-0.023	-0.017	0.050	0.048		0.315	0.241
	[0.023]	[0.022]	[0.036]	[0.031]		[0.284]	[0.179]
ever studied accounting/economics? missing dummy	-0.051		-0.110			-0.605	-0.647
	[0.034]		[0.115]			[0.912]	[0.982]
Household income category (default: $0)							
income: $1-$10,000	-0.033	-0.042	-0.154	-0.240**		-1.057	-1.749
	[0.055]	[0.096]	[0.096]	[0.121]		[1.280]	[1.112]
income: $10,000-$20,000	-0.079	-0.111	-0.133	-0.137		-0.221	-1.309*
	[0.046]	[0.095]	[0.097]	[0.107]		[1.104]	[0.762]
income: $20,000-$30,000	0.036	0.049	-0.100	-0.104		0.076	-1.192*
	[0.070]	[0.091]	[0.087]	[0.098]		[1.177]	[0.711]
income: $30,000-$50,000	0.041	0.048	-0.001	-0.014		0.253	-0.336
	[0.035]	[0.061]	[0.094]	[0.105]		[1.284]	[0.492]
income: $50,000-$70,000	-0.010	0.011	-0.018	-0.021		0.478	-0.599
	[0.046]	[0.075]	[0.107]	[0.116]		[1.330]	[0.658]
income: $70,000-$100,000	0.065*	0.066	0.054	0.031		0.373	0.027
	[0.031]	[0.046]	[0.093]	[0.107]		[1.249]	[0.744]
income: $100,000-$200,000	0.067	0.075	0.049	0.029		0.235	0.006
	[0.055]	[0.076]	[0.081]	[0.100]		[1.070]	[0.714]
income: more than $200,000	0.146	0.128	0.060	0.019		0.406	-0.151
	[0.097]	[0.079]	[0.078]	[0.087]		[0.928]	[0.660]
Constant	-0.419**		-0.703***			-9.241***	-7.137***
	[0.134]		[0.194]			[1.928]	[1.390]
Observations	1,011	1,003	1,011	1,006		1,011	
R-squared	0.096		0.237				
Region dummies	Yes	Yes	Yes	Yes		Yes	

Standard errors are clustered at regional level. Raw coefficients are reported for OLS and Multinomial logit models.

Marginal effects are reported for logit models. *** p<0.01, ** p<0.05, * p<0.1

Appendix 1 Financial literacy and associated covariates in Japan
(with a full set of the covariates)

	(1) OLS	(2) Ordered probit
age	-0.017**	-0.020***
	[0.005]	[0.005]
sex (=1 if male, 0 otherwise)	0.245***	0.293***
	[0.047]	[0.053]
work (=1 if working, 0 otherwise)	-0.041	-0.032
	[0.052]	[0.061]
work: missing dummy	-0.072	-0.141
	[0.218]	[0.331]
current_married	-0.068	-0.061
	[0.034]	[0.044]
current_married: missing dummy	-0.563	-0.698
	[0.363]	[0.570]
Education category (default: primary/junior high schoool)		
senior_high	0.155**	0.179***
	[0.053]	[0.058]
junior_college	0.194*	0.224***
	[0.073]	[0.073]
university	0.381**	0.423***
	[0.114]	[0.116]
graduate	0.417**	0.451***
	[0.101]	[0.087]
Education variable: missing dummy	-0.067	-0.161
	[0.110]	[0.188]
Serial 7 (=1 if correct, 0 otherwise)	0.107**	0.111***
	[0.023]	[0.027]
Word recall	0.066**	0.078***
	[0.018]	[0.020]
ever studied accounting/economics?	0.227	0.256**
(=1 if yes, 0 otherwise)	[0.109]	[0.112]
ever studied accounting/economics?	0.100	0.089
missing dummy	[0.049]	[0.071]
Household income category (default: 0 yen)		
income: 1-1million yen	-0.007	-0.007
	[0.158]	[0.204]
income: 1-2 million yen	0.101	0.112
	[0.056]	[0.075]
income: 2-3 million yen	0.098	0.104
	[0.141]	[0.167]
income: 3-5 million yen	0.338*	0.354**
	[0.138]	[0.159]
income: 5-7 million yen	0.341	0.337*
	[0.172]	[0.201]
income: 7-10 million yen	0.278	0.275
	[0.155]	[0.191]
income: more than 10 million yen	0.470*	0.488**
	[0.192]	[0.225]
income: missing dummy	-0.072	-0.105
	[0.069]	[0.091]
Risk preference (default: no uncertainty)		
risk: 10-30%	-0.110	-0.110*
	[0.055]	[0.058]
risk: 40-60%	-0.058	-0.069
	[0.033]	[0.042]
risk: 70-90%	0.068	0.064
	[0.151]	[0.163]
risk preference: missing dummy	-0.178***	-0.230***
	[0.038]	[0.051]
Time discounting preference (default: 0-0.5%)		
time: 1-6%	0.152**	0.156***
	[0.043]	[0.052]
time: 10-40%	0.081	0.063
	[0.058]	[0.063]
time discounting preference:	-0.009	-0.048
missing dummy	[0.065]	[0.082]
CESD (=1 if score>=20, 0 otherwise)	-0.090	-0.106**
	[0.047]	[0.050]
CESD: missing dummy	-0.064	-0.066
	[0.044]	[0.050]
subjective probability living up to 85	0.002	0.002*
	[0.001]	[0.001]
Constant	1.678***	
	[0.286]	
Observations	2,852	2,852
R-squared	0.218	
Region dummies	Yes	Yes

The dependent variable is the number of correct answers.
Standard errors are clustered at regional level. *** p<0.01, ** p<0.05, * p<0.1

Appendix Table 2 Financial literacy and investment behaviors: Bond or/and Stock

	Japan			US	
	(1)	(2)		(3)	(4)
	OLS	Logit		OLS	Logit
Number of correct answers	0.059***	0.054***	Number of correct answers	0.044***	0.053***
	[0.007]	[0.007]		[0.006]	[0.010]
age	0.004*	0.004***	age	0.005***	0.005***
	[0.002]	[0.001]		[0.002]	[0.002]
sex (=1 if male, 0 otherwise)	-0.034	-0.033**	sex (=1 if male, 0 otherwise)	-0.008	-0.012
	[0.017]	[0.014]		[0.027]	[0.026]
work (=1 if working, 0 otherwise)	-0.056*	-0.054***	work (=1 if working, 0 otherwise)	-0.061**	-0.053***
	[0.023]	[0.019]		[0.020]	[0.016]
work: missing dummy	-0.167*	-	work: missing dummy		
	[0.068]				
current_married	-0.002	-0.003	current_married	0.002	-0.005
	[0.015]	[0.016]		[0.014]	[0.014]
current_married: missing dummy	-0.183***		current_married: missing dummy		
	[0.009]				
Education category (default: primary/junior high schoool)			Education category (default: primary/junior high schoool)		
senior_high	0.109***	0.129***	senior_high	0.027	0.071
	[0.021]	[0.028]		[0.033]	[0.060]
junior_college	0.161**	0.171***	junior_college	0.057	0.103*
	[0.043]	[0.043]		[0.042]	[0.059]
university	0.161**	0.165***	university	0.138***	0.165***
	[0.050]	[0.026]		[0.041]	[0.051]
graduate	0.278*	0.243***	graduate	0.285***	0.241***
	[0.102]	[0.066]		[0.033]	[0.042]
Education variable: missing dummy	0.161	0.172**	Education variable: missing dummy	-0.006	
	[0.101]	[0.088]		[0.052]	
Serial 7 (=1 if correct, 0 otherwise)	-0.000	0.004	Serial 7 (=1 if correct, 0 otherwise)	0.018	0.011
	[0.008]	[0.009]		[0.024]	[0.023]
Word recall	-0.004	-0.005**	Word recall	0.007	0.006
	[0.003]	[0.002]		[0.007]	[0.007]
ever studied accounting/economics?	0.108***	0.084***	ever studied accounting/economics?	-0.023	-0.020
(=1 if yes, 0 otherwise)	[0.023]	[0.015]	(=1 if yes, 0 otherwise)	[0.027]	[0.026]
ever studied accounting/economics?	-0.042	-0.047	ever studied accounting/economics?	-0.058	
missing dummy	[0.043]	[0.056]	missing dummy	[0.068]	
Household income category (default: 0 yen)			Household income category (default: $0)		
income: 1-1million yen	0.061**	0.065***	income: $1-$10,000	-0.040	-0.047
	[0.014]	[0.018]		[0.038]	[0.067]
income: 1-2 million yen	0.036	0.042	income: $10,000-$20,000	-0.062	-0.073
	[0.035]	[0.045]		[0.038]	[0.075]
income: 2-3 million yen	0.062	0.065	income: $20,000-$30,000	-0.003	0.022
	[0.043]	[0.054]		[0.043]	[0.075]
income: 3-5 million yen	0.097**	0.099***	income: $30,000-$50,000	0.098***	0.119**
	[0.021]	[0.037]		[0.023]	[0.057]
income: 5-7 million yen	0.180***	0.168***	income: $50,000-$70,000	0.011	0.049
	[0.031]	[0.044]		[0.047]	[0.082]
income: 7-10 million yen	0.255***	0.221***	income: $70,000-$100,000	0.126**	0.136*
	[0.052]	[0.064]		[0.056]	[0.077]
income: more than 10 million yen	0.296***	0.253***	income: $100,000-$200,000	0.183***	0.183**
	[0.049]	[0.037]		[0.051]	[0.074]
income: missing dummy	0.032	0.031	income: more than $200,000	0.336***	0.255***
	[0.029]	[0.040]		[0.066]	[0.059]
Constant	-0.128		Constant	-0.462***	
	[0.089]			[0.116]	
Observations	2,397	2,388	Observations	1,011	1,003
R-squared	0.147		R-squared	0.190	
Region dummies	Yes	Yes	Region dummies	Yes	Yes

The dependent variable takes 1 for a bond and/or stock holder and 0 otherwise. Standard errors are clustered at regional level. Marginal effects are reported for logit models. *** p<0.01, ** p<0.05, * p<0.1