Online Appendix accompanying:

The Precision of Subjective Data and the Explanatory Power of Economic Models*

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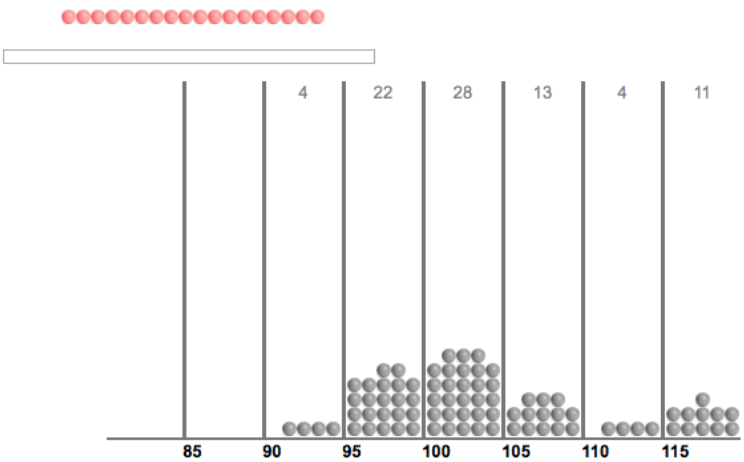
A.1.1 Subjective expectations of stock market returns

AEX return - Ball allocation task. In August 2013, we asked respondents to describe their expectations for the one-year return of the Amsterdam Exchange Index (AEX). To elicit the full distribution of individual expectations, we employed a variation of the procedure presented in Delavande and Rohwedder (2008), which was explicitly developed for usage in Internet experiments and pays particular attention to the cognitive burden placed on heterogeneous subject pools. We asked respondents to imagine that they invested 100 € into an exchange traded AEX index fund today and to think about the likely value of this investment in one year. To aid respondents' thinking process and ensure comprehension of the task, the instructions clarified what an index fund is and provided an explicit formula for the value of the investment in one year (*value in a year = 100 € - 0.30 € (fees) + change in the AEX index*).

Figure A.1: Visual interface to elicit belief distribution (final step)

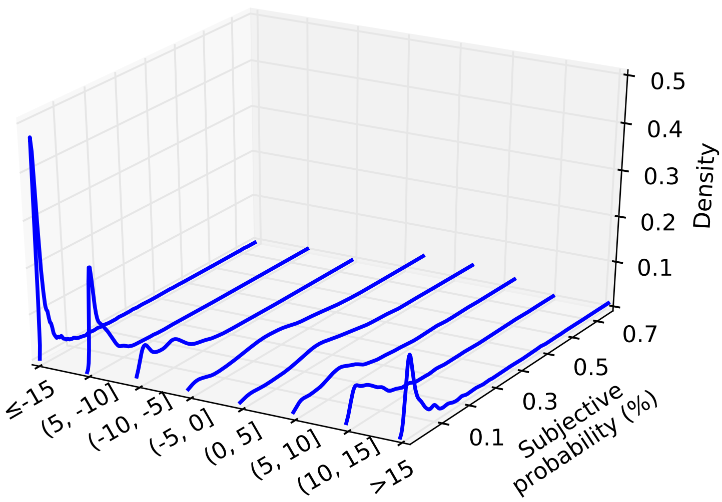


The figure shows the final step of the belief eliciation procedure. Respondents used the slider above to allocate 100 balls to the 8 bins below. The figure shows both the remaining balls and the number of balls assigned to each return interval in the previous steps.

We then provided respondents with a visual interface that employed an iterative procedure to allow them to state their beliefs as accurately as possible (see Figure A.1). To familiarize subjects with the visual interface, we showed them an introductory video before asking them for their beliefs about the stock market. The video used the example of expected annual rainy days in London to describe the intuition behind the ball allocation procedure and guided subjects through the controls of the interface.

In the first step of the iterative procedure, the interface presented all possible values of the investment as two intervals, $[0, 100]$ and $(100, \infty)$. We asked participants to use a slider to allocate 100 balls to indicate their relative confidence that the final value of the investment would fall into either of these intervals. We then split up the interval $(100, \infty)$ into $(100, 105]$ and $(105, \infty)$, and we asked subjects to re-allocate the balls from the previous interval to this finer grid. This procedure continued successively until subjects had distributed all balls into 6 interior bins covering intervals of 5 € each and two exterior bins covering the intervals $[0, 85]$ and $(115, \infty)$. Figure A.2 shows the resulting distribution of balls for each interval expressed in terms of expected returns. While the exterior bins contained only a small number of balls for the large majority of respondents, the distribution of balls in the interior bins was substantially more dispersed.

Figure A.2: Distribution of probabilities within bins



Sources: LISS panel and own calculations. The picture shows Kernel density estimates of the distribution of probabilites for each of the 8 return intervals.

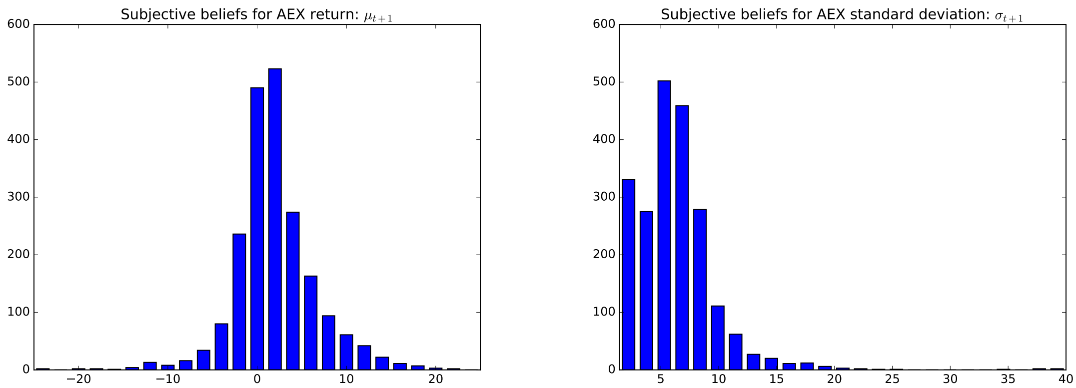
The iterative procedure provides an intuitively simple way of eliciting beliefs and the resulting distribution of balls lends itself to a straightforward interpretation as a histogram. One of its desirable properties is that it does not ask respondents for cumulative probabilities. In contrast, standard survey questions based on the elicitation of points on a cumulative probability distribution often yield logically inconsistent responses due to frequent monotonicity violations. This regularly forces researchers to discard large amounts of data, thereby potentially introducing severe selection effects into the empirical analyses (see, e.g., Manski, 2004; Hurd, Rooij, and Winter, 2011).

To obtain estimates of the mean and variance of individual belief distributions, we employ a procedure similar to Hurd, Rooij, and Winter (2011). We first cumulated the number of balls each respondent assigned to the bins to arrive at a discrete cumulative distribution function. We then used the 7 interior boundary points (b) and the associated values of the CDF (p) to minimize

$$\sum_{i=1}^{7}\left(p_i - \Phi\left(\frac{log(b_i/100) - \mu}{\sigma}\right)\right)^2$$

over μ and σ, our estimates of the mean and standard deviation of the repondent's belief distribution. On average, respondents expect a mean return of 2.01% and a standard deviation of 6.25%. Figure A.3 shows the distribution of estimated mean returns and the distribution of estimated standard deviations. As is evident from the two distributions, subjects have very heterogenuous expectations regarding both the expected return of the AEX as well as its expected standard deviation.

Figure A.3: Distribution of expected mean and standard deviation of returns



Sources: LISS panel and own calculations.

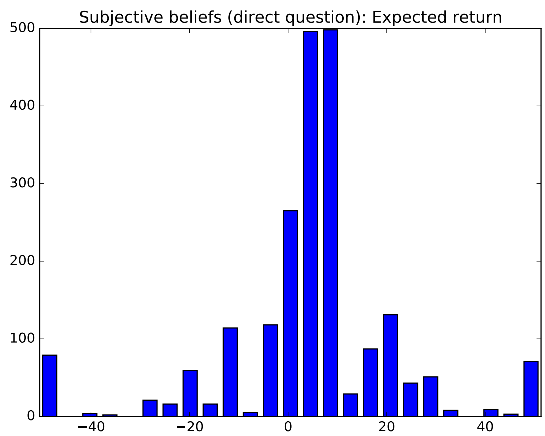
To financially incentive the task, we used the binarized scoring rule of Hossain and Okui (2013). Subjects could either earn 100 € or 0 €, depending on their stated beliefs, the actually realized value of a 100 € investment into the AEX after one year, and the outcome of a random draw. For each subject, we computed the sum of the squared deviations of the belief distribution from the actual value of a 100 € investment after 12 months, $\sum_{i=1}^{8}(b_i - 100 \times \mathbb{1}_i)^2$, where $\mathbb{1}_i$ equalled 1 if the realized value of the investment fell into bin i and 0 otherwise. We then drew a random number from $U[1, 20.000]$. If that random number turned out to be larger (smaller) than the sum of squared deviations, the participant received 100 (0) €.

AEX return - One-shot estimate. In September 2013, we asked our full set of respondents for a second, this time non-incentivized, estimate of the one-year return of the AEX using a one-shot question similar to those commonly employed in large-scale surveys:

> *Please consider the Dutch stock market. The AEX index aggregates the stock prices of many of the largest Dutch companies. Now consider an investment fund tracking the AEX index, i.e. this investment exactly moves up and down with the AEX after subtracting rather small fees. If you invested 100 € in such a fund today, the amount of money you would have in a year from now will be:*
>
> $$\textit{value in a year} = 100\ € - 0.30\ €\ \textit{(fees)} + \textit{change in the AEX index}$$
>
> *What do you think will be this value in a year from now? Please type in your estimate (in Euros).*

Figure A.4 shows the distribution of expected returns implied by subjects' responses to this question. With an average expected return of 4.76%, subjects' point estimates are more optimistic than the mean estimates from the visual task. As is often the case in large-scale representative surveys, we observe a number of outliers in the unrestricted point estimates. Many of these are likely due to typing mistakes or lack of comprehension. Thus, before calculating returns, we winsorize the point estimates at the values of a 100 € investment into the AEX at the 2.5% and 97.5% percentiles of its historical return distribution (49.6 € and 151.3 €). This affected 99 responses.

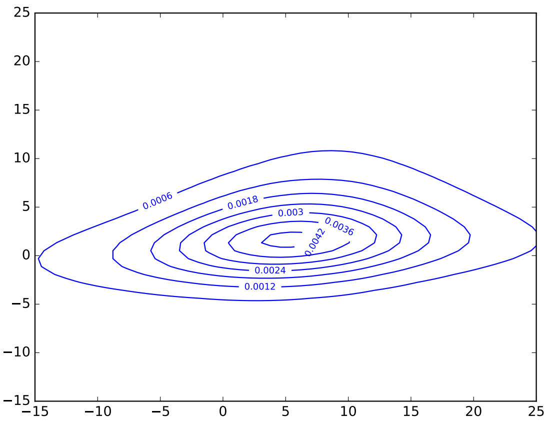
Figure A.4: Distribution of one-shot estimates for return of AEX



Sources: LISS panel and own calculations.

Joint distribution. Figure A.5 shows the joint distribution of the mean estimate from the visual task and the direct estimate from the one shot question. With standard deviations of 6.19% and 17.47%, respectively, the distribution of mean estimates from the visual task is substantially less dispersed than the distribution of direct estimates.

Figure A.5: Joint distribution of both average belief measures



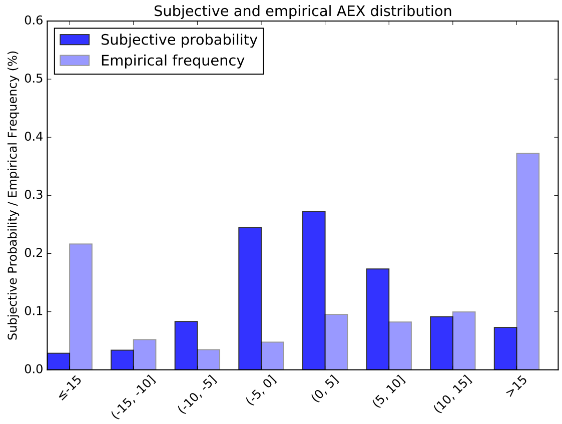
Sources: LISS panel and own calculations.

Comparison to historical distribution of AEX returns. Figure A.6 plots the historical distribution of (inflation-adjusted) AEX returns alongside the average probabilities expected by our sample respondents. Respondents considered returns at both ends of the spectrum of the intervals we provided, i.e., in excess of +15% as well as below −15%, far less likely than what has historically been observed. For example, while our average repondent expects less than a 1 in 20 chance of observing returns below −15%, the historical probability of this happening exceeded 20%.

Alternative belief measure - Philips N.V. As part of the survey in August 2013, we also asked our respondents to use the visual interface to express their beliefs for the future development of Philips N.V., one of the largest publicly traded companies of the Netherlands. Figure A.7 shows the distributions of the mean and standard deviation our respondents expect, calculated in the same manner as the moments of the belief distribution for the AEX. The median respondent expects a mean return of 1.534% for Philips, only minimally different from the median expectation of 1.562% for the AEX. The joint density in Figure A.9 shows that the correlation between the mean beliefs for both assets is fairly high ($\rho = 0.36$). The correlation between the expected standard deviations is of similar magnitude ($\rho = 0.35$).

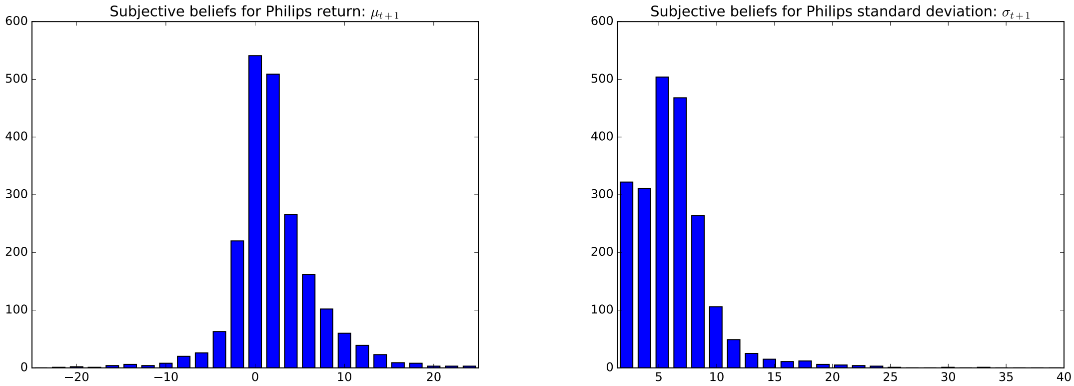
Figure A.8 compares the average probabilities expected by our sample respondents to the historical distribution of (inflation-adjusted) Philips returns. Similar to the results presented

Figure A.6: Expected and historical distribution of AEX



Sources: LISS panel and own calculations.

Figure A.7: Distribution of expected mean and standard deviation of returns - Philips



Sources: LISS panel and own calculations.

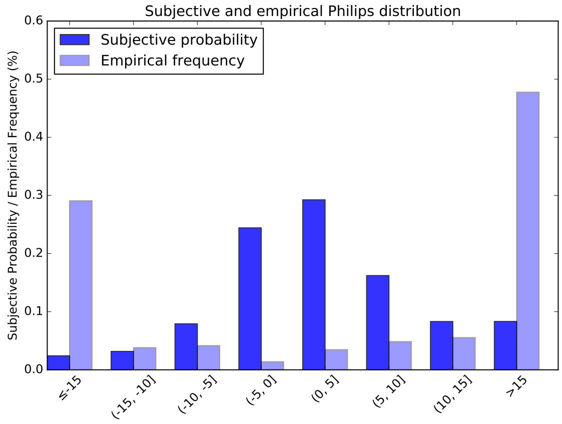
in Figure A.6 for the expected returns of the AEX, we see that respondents consider extreme returns for Philips much less likely than what has historically been observed.

In September, we also asked respondents for a one-shot estimate for the return of Philips alongside their one-shot estimate for the return of the AEX. Figure A.10 shows the distribution of their answers.

Return to savings account - One-shot estimate. In August 2013, we asked respondents for an estimate of the return of a one-year investment into a standard savings account:

> *Suppose you invested 100 € into a standard savings account with a large Dutch bank. Then, in a year from now, the total amount of money you would have will*

Figure A.8: Expected and historical distribution of philips



Sources: LISS panel and own calculations.

be:

$$value\ in\ a\ year = 100\ € + interest\ payments$$

What do you think will be this value in a year from now? Please type in your estimate (in Euros).

To ensure comprehension of the question, the computer screen also contained a link with more detailed information and the example of a savings account with Rabobank (Rabo Spaar-Rekening). Figure A.11 shows the distribution of savings estimates. Somewhat surprisingly, subjects' average return estimate for the savings account is 3.35% and thus larger than their average estimate for the AEX in the visual task, though it is smaller than the average point estimate for the AEX. Similar to the one-shot AEX estimates, we winsorize point estimates for the savings account at the 5 and 95% percentiles of the sample distribution before calculating returns.

A.1.2 Proxies for the precision of subjective data

Our rich data allow us to employ a number of different variables to proxy for the precision of subjective data. We use 5 proxies in total, 1 based on the consistency in stated beliefs, 2 based on subjects' confidence in their estimates, and 2 based on the subjects' perception of our survey.

Consistency in beliefs. As discussed in Section A.1.1, we used the survey in September 2014 to ask our full set of respondents for a second estimate of the one-year return of the AEX. We use the absolute difference between the response to this question and the mean belief from

Figure A.9: Joint density of mean beliefs for AEX and Philips

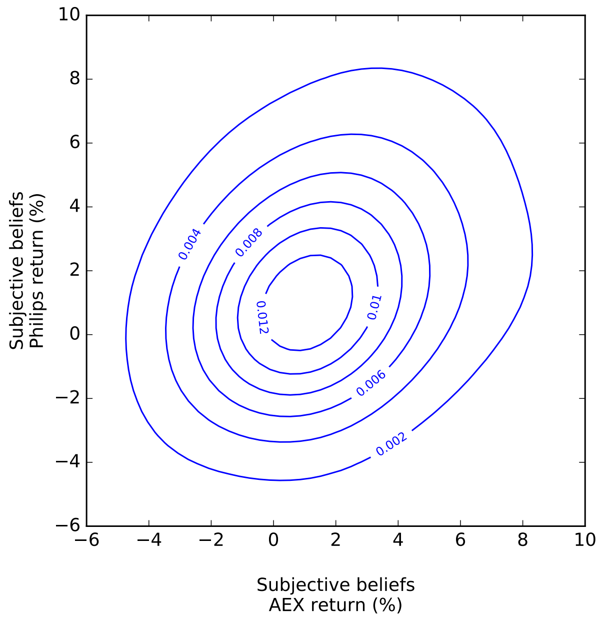
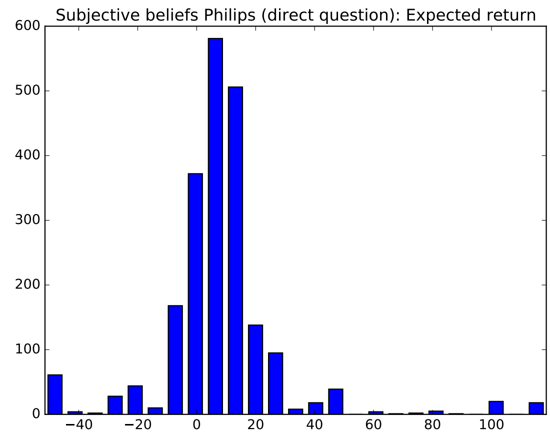


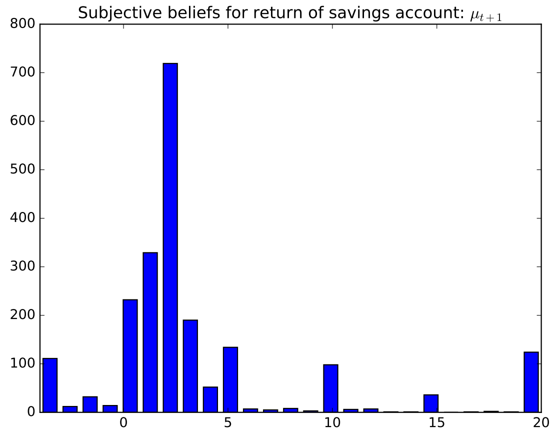
Figure A.10: Distribution of one-shot estimates for return of philips



Sources: LISS panel and own calculations.

the visual task as a quantitative proxy for the precision of subjective data. Figure A.12 shows a histogram of the absolute differences. On average, subjects' second estimate deviates from the mean estimate from the visual task by a considerable margin, 11.20 percentage points. This seems particularly large when compared to the average expected standard deviation of

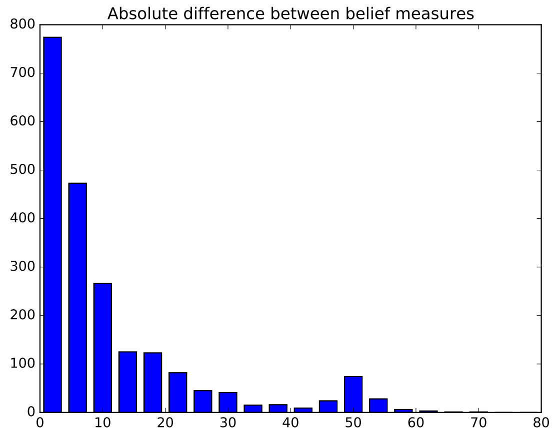
Figure A.11: Distribution of one-shot estimates for savings account



Sources: LISS panel and own calculations.

returns from the ball allocation task (6.25%). Note that these differences are not artifacts of the method we employ to estimate mean beliefs. Other methods, which we describe in Sections B.11 and B.12 of this appendix, yield very similar results.

Figure A.12: Distribution of absolute differences between mean belief in visual task and point estimate



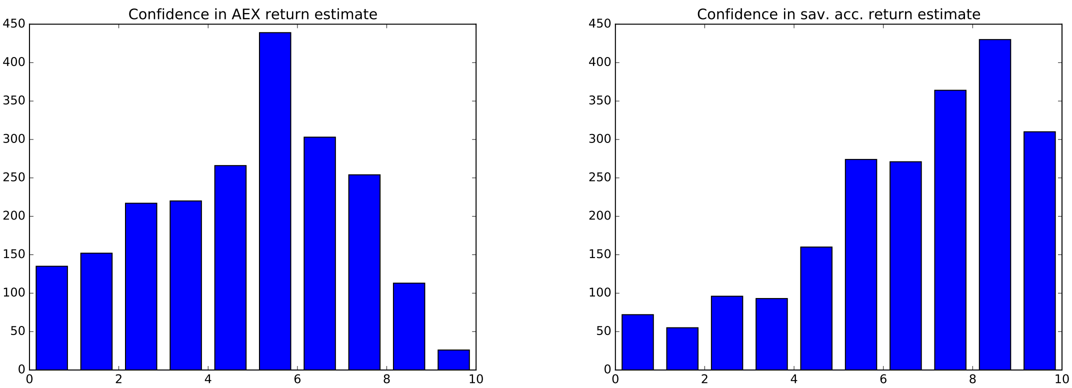
Sources: LISS panel and own calculations.

Confidence in estimates. Following the elicitation of the point estimates for the expected returns of the AEX and the savings account, we asked respondents how certain they felt about their responses:

Please use the slider to indicate how certain you are that the value in a year will equal your estimate. 0 indicates "not certain at all" and 10 means "absolutely certain".

We conjecture that respondents with little confidence in their own estimates (e.g., because they know that they did not expend much cognitive effort into developing their prediction) provide estimates that are noisy and hence not very predictive of actual choices. Figure A.13 shows histograms for the answers to both questions. Respondents seem to be on average less confident in their estimates for the return of the AEX as compared to their estimates for the savings account. For the empirical analyses, we scale the variables to range between 0 and 1.

Figure A.13: Distribution of slider values for confidence in estimates

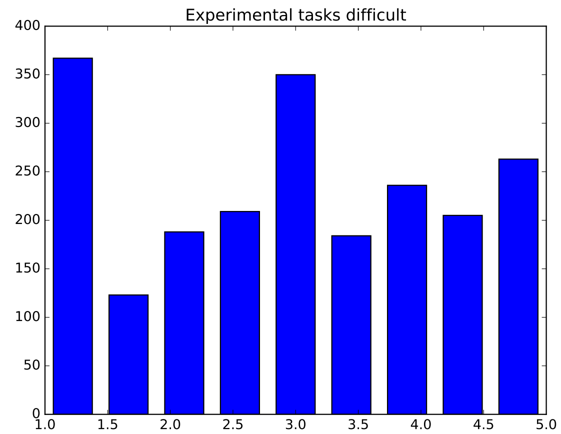


Sources: LISS panel and own calculations.

Simplicity. Following the survey in August 2013 and September 2013, we asked subjects to use five-point scales to indicate how difficult they considered the preceding belief elicitation task. We conjecture that answers by respondents who found it very hard to detail their stock market expectations are likely to exhibit a high variability. Figure A.14 shows the distribution of the average of the responses in both surveys. Respondents vary greatly in their assessment of the tasks' difficulties. While some considered it simple, others seemed to find the task very demanding. We scale the average to range between 0 and 1 and invert the resulting variables for our empirical analysis.

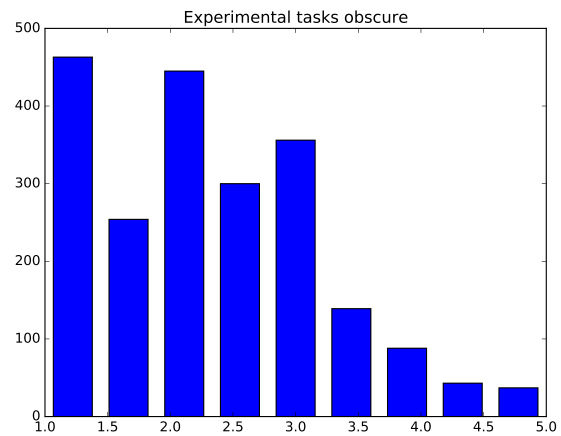
Clarity. In August 2013 and September 2013, we also asked subjects to use five-point scales to indicate how vague/obscure they found our questions. We expect that limited comprehension of the task on the side of respondents will lead to noisier measures of expectations. Figure A.15 shows a histogram of the average response to this question in both surveys. For the empirical analysis, we also invert the variable and scale the average to range between 0 and 1.

Figure A.14: Distribution of assessments of difficulty



Sources: LISS panel and own calculations.

Figure A.15: Distribution of assessments of obscurity



Sources: LISS panel and own calculations.

A.1.3 Risk preferences

We use a composite variable to measure risk aversion. To construct this variable, we ask respondents two questions on their self-assessed willingness to take risks and we elicit one quantitative measure based on hypothetical lottery choices. In our empirical analyses, we use the average of the standardized values of all three measures to proxy for risk aversion, suitably coded so that larger values of individual variables as well as well as the composite variable correspond to larger values of risk aversion.

Risk questions. The subjective self-assessments directly ask for an individual's willingness to take risks, both in general terms and in financial matters:

> *"Different people have different opinions and characteristics. We are interested in how you describe yourself. In general, to what extent are you willing to take risks? You can answer this question by clicking somewhere on the slider (0-10)."*

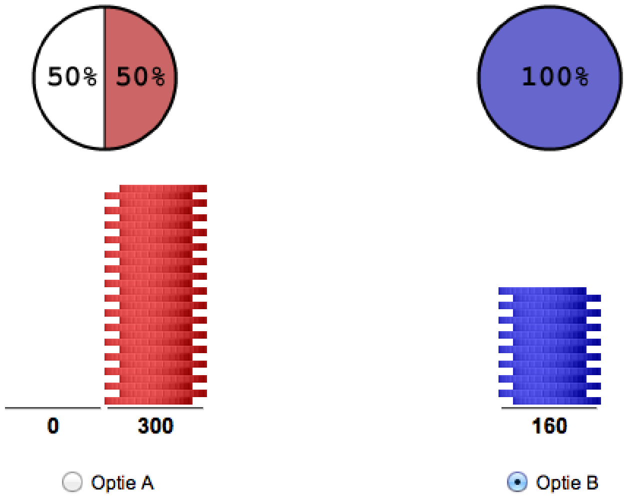
> *"And, in general, to what extent are you willing to take risks in financial matters? You can answer this question by clicking somewhere on the slider (0-10)."*

Risk lottery. We derive a quantitative measure of risk aversion from a series of five interdependent hypothetical binary lottery choices, a format commonly referred to as the "staircase procedure". In each of the questions, participants had to decide between a 50/50 lottery to win 300 € or nothing and a varying safe payment. The questions were interdependent in the sense that the choice of a lottery resulted in an increase of the safe amount being offered in the next question, while the choice of the safe payment resulted in a decrease of the safe amount in the next question. For instance, the fixed payment in the first question was 160 €. In case the respondent chose the lottery, the safe payment increased to 240 € in the second question. In case the respondent chose the safe payment, the next question's fixed payment was reduced to 80 €. By adjusting the fixed payment according to previous choices, the questions allow for a relatively fine quantitative assessment of an individual's attitudes towards risk. With 32 possible outcomes evenly spaced between 0 and 320 €, the procedure can in principle pin down a respondent's certainty equivalent to a range of 10 euros. Because of the task's abstract nature and our heterogeneous subject pool, we accompanied each lottery decision with a visual representation of the current lottery to ensure comprehension, see Figure A.16.

The above variables resemble the variables developed for the "Preference Survey Module" in Falk et al. (2014) to measure economic preference parameters in large-scale surveys. Falk et al. (2014) use an experimental validation procedure to select behaviorally valid survey items to measure economic preferences. Dohmen et al. (2011) show that responses to our qualitative survey items correlate with many risky field choices, including stockholdings. Thus, even though the questions we asked were not financially incentivized, they are known to be behaviorally valid and were explicitly developed for the purpose of large-scale studies like ours.

In Figure A.17, we show histograms of the indiviual components as well the composite variable. There is substantial variation in the answers to all three questions. In the lottery task, most of our subjects end up with estimated certainty equivalents below 160 €, suggesting that the majority of our subjects is risk averse.

Figure A.16: Graphical illustration of hypothetical lottery choice



The figure shows the visual interface accompanying one of the lottery decisions.

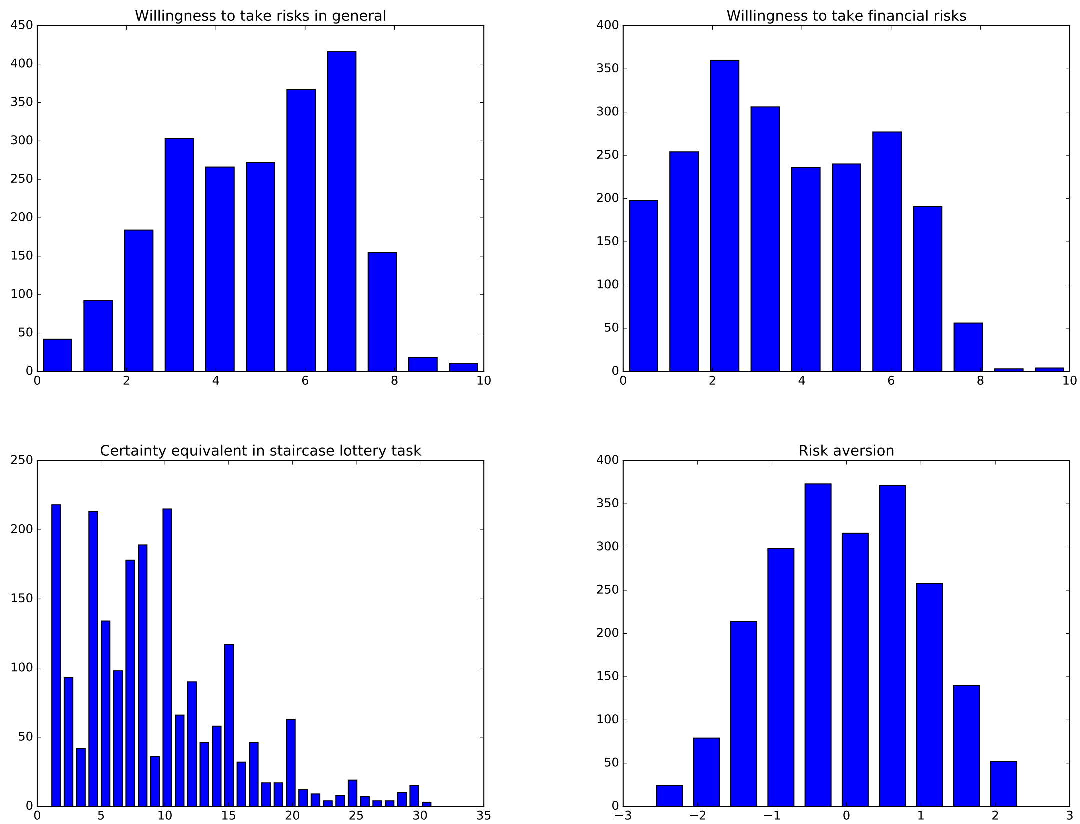
A.1.4 Transaction cost proxies / sociodemographics

Portfolio value. LISS collects detailed information on the value of a respondent's financial assets. To calculate an estimate of the total value of a respondent's portfolio, we sum the amounts held as investments and those in the bank, which we set to 0 in case the household reported negative values. LISS allows respondents to provide either continuous or interval statements for each category of assets. To calculate the overall portfolio value, we replace categorical answers by the midpoint of the respective interval. For example, we set an answer like "7.500 to 10.000 €" to 8.750 €. For all respondents, we use the most detailed level of information available. For investments, LISS asks both for the aggregate value of investments as well as for the value of the subcategories (stocks, funds, and other investments). We use the more detailed data if available, and we use the answer to the aggregate question otherwise.

Employing the resulting estimate of a respondent's portfolio value, we create categorical variables for each of the sample's portfolio value terciles. Some respondents prefer not to answer the questions concerning their financial situation, so we create one more binary variable for missing portfolio values.

Net household income. Using LISS's information, we create a binary variable for net household income in excess of 2.500 €, the median income of households providing an answer to the income question. We create a further dummy for households with missing values for income ($\approx$ 7% of the sample).

Figure A.17: Distribution of risk aversion components and aggregate variable



Sources: LISS panel and own calculations.

Education. LISS asks respondents for the highest educational degree. In our main estimation, we include a dummy variable for respondents who either report having a university degree or higher vocational education.

Age. Using LISS's data on birthyears, we create binary variables for several different age groups (31 to 50, 51 to 65, and for respondents older than 65).

A.2 Correlations

Table A.1 shows the correlation matrix for all main variables.

Table A.1: Correlation matrix

	Subjective beliefs: $\mu_{t+1}^{\text{AEX}} - \mu_{t+1}^{\text{sav. acc.}}$	Subjective beliefs: $\sigma_{t+1}^{\text{AEX}}$	Risk aversion	Abs. diff. between belief measures	Confidence in AEX return estimate	Confidence in sav. acc. return estimate	Experimental tasks simple	Experimental tasks clear	Financial wealth ∈ (10000 €, 30000 €]	Financial wealth ∈ (30000 €, ∞)	Net income > 2500 €	High education	30 < Age ≤ 50	50 < Age ≤ 65	Age > 65
Subjective beliefs: $\mu_{t+1}^{\text{AEX}} - \mu_{t+1}^{\text{sav. acc.}}$	1	**-0.19**	**-0.11**	**-0.21**	**0.16**	**0.24**	**0.17**	**0.18**	0.00	**0.18**	**0.13**	**0.15**	-0.02	**0.09**	-0.03
Subjective beliefs: $\sigma_{t+1}^{\text{AEX}}$	·	1	0.01	**0.25**	**-0.09**	**-0.09**	-0.04	**-0.08**	-0.03	**-0.08**	-0.04	**-0.06**	0.01	-0.04	0.00
Risk aversion	·	·	1	**0.06**	**-0.33**	**-0.22**	**-0.20**	**-0.13**	-0.00	**-0.07**	**-0.12**	**-0.16**	**-0.09**	0.01	**0.14**
Abs. diff. between belief measures	·	·	·	1	**-0.13**	**-0.23**	**-0.08**	**-0.11**	-0.05	**-0.20**	**-0.14**	**-0.19**	-0.01	**-0.06**	0.05
Confidence in AEX return estimate	·	·	·	·	1	**0.52**	**0.23**	**0.20**	0.04	**0.08**	**0.13**	**0.07**	-0.00	0.04	-0.04
Confidence in sav. acc. return estimate	·	·	·	·	·	1	**0.24**	**0.28**	**0.07**	**0.20**	**0.20**	**0.20**	**0.07**	0.04	**-0.12**
Experimental tasks simple	·	·	·	·	·	·	1	**0.48**	-0.01	0.04	**0.13**	**0.07**	**0.07**	**0.08**	**-0.18**
Experimental tasks clear	·	·	·	·	·	·	·	1	0.01	**0.10**	**0.09**	**0.10**	0.05	**0.07**	**-0.13**
Financial wealth ∈ (10000 €, 30000 €]	·	·	·	·	·	·	·	·	1	**-0.37**	0.02	0.03	0.01	**-0.07**	0.05
Financial wealth ∈ (30000 €, ∞)	·	·	·	·	·	·	·	·	·	1	**0.20**	**0.17**	**-0.13**	**0.14**	0.05
Net income > 2500 €	·	·	·	·	·	·	·	·	·	·	1	**0.23**	**0.10**	0.03	**-0.10**
High education	·	·	·	·	·	·	·	·	·	·	·	1	0.05	-0.01	**-0.10**
30 < Age ≤ 50	·	·	·	·	·	·	·	·	·	·	·	·	1	**-0.47**	**-0.42**
50 < Age ≤ 65	·	·	·	·	·	·	·	·	·	·	·	·	·	1	**-0.46**
Age > 65	·	·	·	·	·	·	·	·	·	·	·	·	·	·	1

Significant correlations ($p < 0.01$) printed in bold.

A.3 Correlates of beliefs

Table A.2 presents regressions of various measures of expectations on sociodemographic covariates. In column (1), the dependent variable is the mean belief from the ball allocation task, in column (2) it is the corresponding standard deviation, and column (3) employs the point estimate of the return of a savings account.

Table A.2: Beliefs and sociodemographics

	(1)	(2)	(3)
Constant	2.066***	6.811***	5.739***
	(0.504)	(0.350)	(0.610)
Financial wealth ∈ (10000 €, 30000 €]	-0.018	-0.536***	-0.476
	(0.313)	(0.199)	(0.319)
Financial wealth ∈ (30000 €, ∞)	1.035***	-0.739***	-0.927***
	(0.330)	(0.212)	(0.290)
Financial wealth missing	-1.058***	-0.122	0.099
	(0.379)	(0.256)	(0.410)
Net income > 2500 €	0.476*	0.040	-0.357
	(0.254)	(0.161)	(0.249)
Net income missing	0.284	0.015	-1.281***
	(0.445)	(0.331)	(0.472)
High education	0.695***	-0.314**	-1.131***
	(0.237)	(0.155)	(0.218)
30 < Age ≤ 50	0.357	-0.044	-1.092*
	(0.475)	(0.336)	(0.624)
50 < Age ≤ 65	0.224	-0.363	-2.332***
	(0.485)	(0.342)	(0.596)
Age > 65	-0.618	-0.129	-1.762***
	(0.498)	(0.342)	(0.619)
Female	-1.397***	0.262*	1.251***
	(0.238)	(0.157)	(0.237)
Married	-0.034	-0.041	-0.561**
	(0.253)	(0.165)	(0.249)
Has children	0.230	-0.244	0.078
	(0.272)	(0.185)	(0.280)
Observations	2,108	2,108	2,125
Adj. (pseudo) R^2 (%)	5.6	1.2	6.6

The left-hand variable in column (1) is the mean return from the visual task. In column (2), it is the standard deviation of returns in the visual task. Column (3) includes the estimate for the return of the savings account as the left-hand variable. Robust standard errors in parentheses.

B Robustness checks

B.1 No transaction cost proxies

Table B.1: Coefficient estimates for the economic model index and the subjective data precision index, model without transaction cost proxies

	Model		Subjective data precision	
	Estimate	Std. Err.	Estimate	Std. Err.
Subjective beliefs: $\mu_{t+1}^{\text{AEX}} - \mu_{t+1}^{\text{sav. acc.}}$	1.00	·	·	·
Subjective beliefs: $\sigma_{t+1}^{\text{AEX}}$	-0.75	0.24	·	·
Risk aversion	-4.56	1.00	·	·
Absolute difference between belief measures	·	·	-1.00	·
Confidence in AEX return estimate	·	·	-4.13	11.55
Confidence in sav. acc. return estimate	·	·	55.94	20.65
Experimental tasks simple	·	·	34.06	10.30
Experimental tasks clear	·	·	10.12	10.67

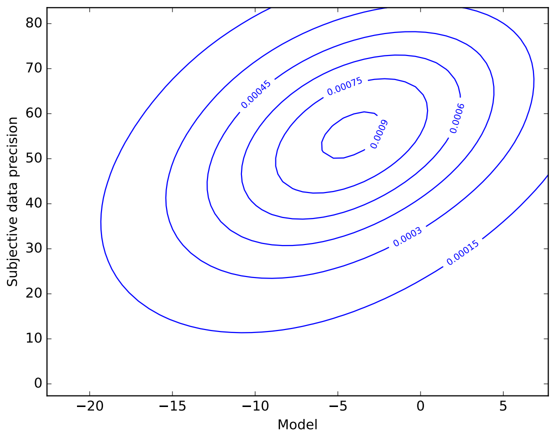
Sources: LISS panel and own calculations. All variables as described in Table 3 in the main text. The model excludes all transaction cost proxies (financial wealth, net income, education, age).

Table B.2: Average partial effects, model without transaction cost proxies

	Model	Subj. data prec.	Combined
Subjective beliefs: $\mu_{t+1}^{\text{AEX}} - \mu_{t+1}^{\text{sav. acc.}}$	0.065	·	0.065
Subjective beliefs: $\sigma_{t+1}^{\text{AEX}}$	-0.031	·	-0.031
Risk aversion	-0.046	·	-0.046
Absolute difference between belief measures	·	-0.034	-0.034
Confidence in AEX return estimate	·	-0.002	-0.002
Confidence in sav. acc. return estimate	·	0.024	0.024
Experimental tasks simple	·	0.021	0.021
Experimental tasks clear	·	0.006	0.006

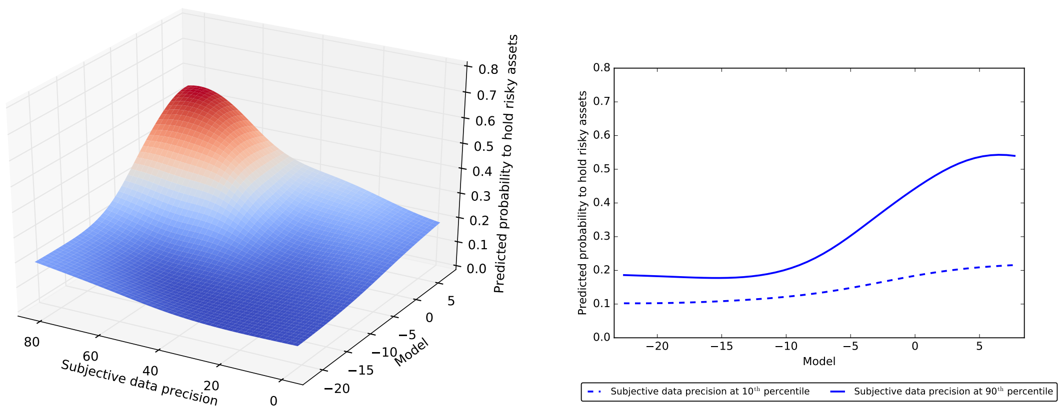
Sources: LISS panel and own calculations. All variables as described in Table 4 in the main text. The model excludes all transaction cost proxies (financial wealth, net income, education, age).

Figure B.1: Joint density of the two indices, model without transaction cost proxies



Sources: LISS panel and own calculations. The figure plots the joint density of the estimated indices of the Klein and Vella (2009) model; see Section 2.3 for a detailed description.

Figure B.2: Predicted probability to hold risky assets, model without transaction cost proxies



Sources: LISS panel and own calculations. The left panel presents the predicted probability of stock market participation for varying levels of the economic model and subjective data precision indices. The right panel plots the relation between the predicted probability of participation and the economic model index for the 10 and 90% quantiles of the subjective data precision index. Ranges are limited to the interval between the 5% and 95% quantiles of the marginal distributions.

B.2 Mean beliefs only

Table B.3: Coefficient estimates for the economic model index and the subjective data precision index, model with mean beliefs and proxies for the subjective data precision only

	Model		Subjective data precision	
	Estimate	Std. Err.	Estimate	Std. Err.
Subjective beliefs: $\mu_{t+1}^{\text{AEX}} - \mu_{t+1}^{\text{sav. acc.}}$	1.00	·	·	·
Absolute difference between belief measures	·	·	-1.00	·
Confidence in AEX return estimate	·	·	11.54	10.07
Confidence in sav. acc. return estimate	·	·	80.10	25.04
Experimental tasks simple	·	·	26.35	8.74
Experimental tasks clear	·	·	12.40	10.75

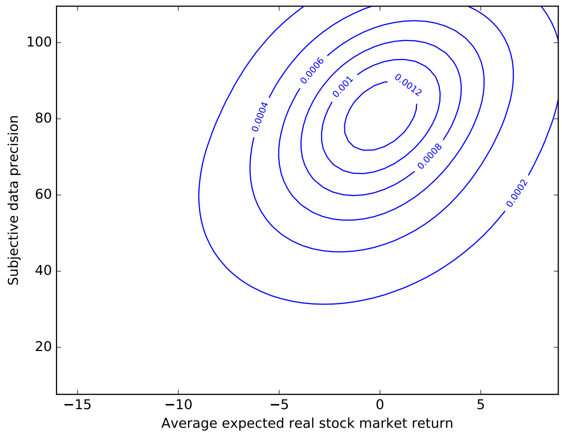
Sources: LISS panel and own calculations. All variables as described in Table 3 in the main text. The model excludes the standard deviation in beliefs, risk preferences, and all transaction cost proxies (financial wealth, net income, education, age).

Table B.4: Average partial effects, model with mean beliefs and proxies for the precision of subjective data only

	Model	Subj. data prec.	Combined
Subjective beliefs: $\mu_{t+1}^{\text{AEX}} - \mu_{t+1}^{\text{sav. acc.}}$	0.036	·	0.036
Absolute difference between belief measures	·	-0.036	-0.036
Confidence in AEX return estimate	·	0.007	0.007
Confidence in sav. acc. return estimate	·	0.043	0.043
Experimental tasks simple	·	0.022	0.022
Experimental tasks clear	·	0.008	0.008

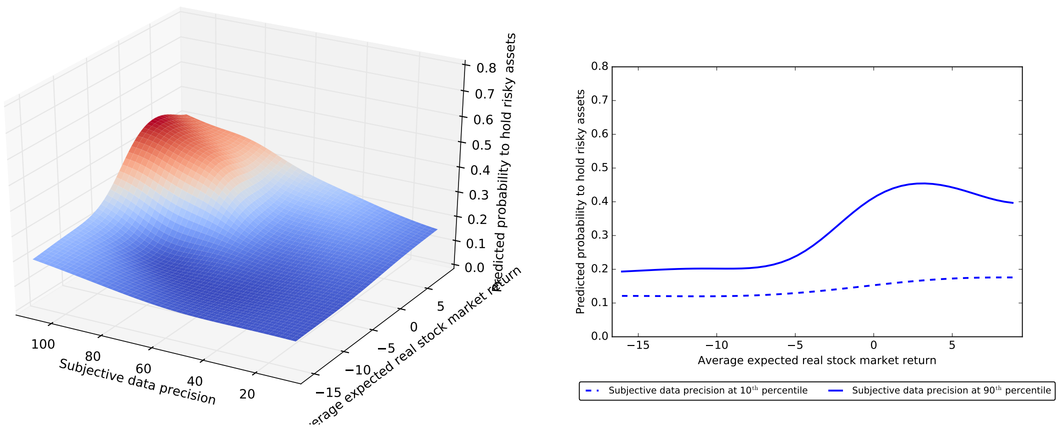
Sources: LISS panel and own calculations. All variables as described in Table 4 in the main text. The model excludes the standard deviation in beliefs, risk preferences, and all transaction cost proxies (financial wealth, net income, education, age).

Figure B.3: Joint density of the two indices, model with mean beliefs and proxies for the precision of subjective data only



Sources: LISS panel and own calculations. The figure plots the joint density of the estimated indices of the Klein and Vella (2009) model; see Section 2.3 for a detailed description.

Figure B.4: Predicted probability to hold risky assets, model with mean beliefs and proxies for the precision of subjective data only



Sources: LISS panel and own calculations. The left panel presents the predicted probability of stock market participation for varying levels of the economic model and subjective data precision indices. The right panel plots the relation between the predicted probability of participation and the economic model index for the 10 and 90% quantiles of the subjective data precision index. Ranges are limited to the interval between the 5% and 95% quantiles of the marginal distributions.

B.3 Redefining errors as absolute difference between modal belief in visual task and point estimate

Table B.5: Coefficient estimates for the economic model index and the subjective data precision index, errors as absolute difference between modal belief and point estimate

	Model		Subjective data precision	
	Estimate	Std. Err.	Estimate	Std. Err.
Subjective beliefs: $\mu_{t+1}^{\text{AEX}} - \mu_{t+1}^{\text{sav. acc.}}$	1.00	·	·	·
Subjective beliefs: $\sigma_{t+1}^{\text{AEX}}$	-0.77	0.28	·	·
Risk aversion	-7.88	1.78	·	·
Abs. difference between mode and point estimate	·	·	-1.00	·
Confidence in AEX return estimate	·	·	61.26	28.21
Confidence in sav. acc. return estimate	·	·	31.05	23.10
Experimental tasks simple	·	·	56.02	20.28
Experimental tasks clear	·	·	15.92	18.75
Financial wealth $\in$ (10000 €, 30000 €]	20.70	5.91	21.47	22.71
Financial wealth $\in$ (30000 €, ∞)	43.65	9.15	96.44	39.02
Financial wealth missing	30.62	7.23	62.10	29.48
Net income $>$ 2500 €	7.33	2.64	-29.41	11.82
Net income missing	-6.61	4.19	4.71	13.32
High education	3.83	2.99	65.40	19.89
$30 <$ Age ≤ 50	11.64	5.62	-23.95	17.57
$50 <$ Age ≤ 65	7.46	5.59	16.36	15.70
Age > 65	-0.48	5.27	22.54	16.81

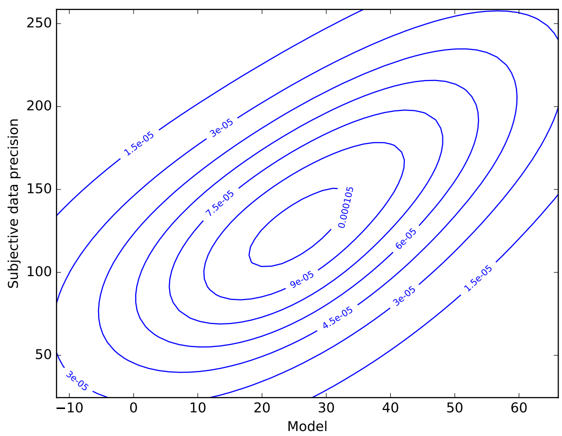
Sources: LISS panel and own calculations. All variables as described in Table 3 in the main text, except that we include the absolute difference between the modal belief in the visual task and the point estimate in the subjective data precision index.

Table B.6: Average partial effects, errors as absolute difference between modal belief and point estimate

	Model	Subj. data prec.	Combined
Subjective beliefs: $\mu_{t+1}^{\text{AEX}} - \mu_{t+1}^{\text{sav. acc.}}$	0.034	·	0.034
Subjective beliefs: $\sigma_{t+1}^{\text{AEX}}$	-0.014	·	-0.014
Risk aversion	-0.037	·	-0.037
Abs. difference between mode and point estimate	·	-0.013	-0.013
Confidence in AEX return estimate	·	0.014	0.014
Confidence in sav. acc. return estimate	·	0.008	0.008
Experimental tasks simple	·	0.019	0.019
Experimental tasks clear	·	0.004	0.004
Financial wealth $\in$ (10000 €, 30000 €]	0.100	0.018	0.100
Financial wealth $\in$ (30000 €, ∞)	0.248	0.120	0.375
Financial wealth missing	0.171	0.070	0.220
Net income $>$ 2500 €	0.037	-0.028	0.009
Net income missing	-0.032	0.005	-0.028
High education	0.018	0.079	0.098
$30 < \text{Age} \leq 50$	0.054	-0.025	0.024
$50 < \text{Age} \leq 65$	0.036	0.019	0.053
$\text{Age} > 65$	-0.002	0.025	0.018

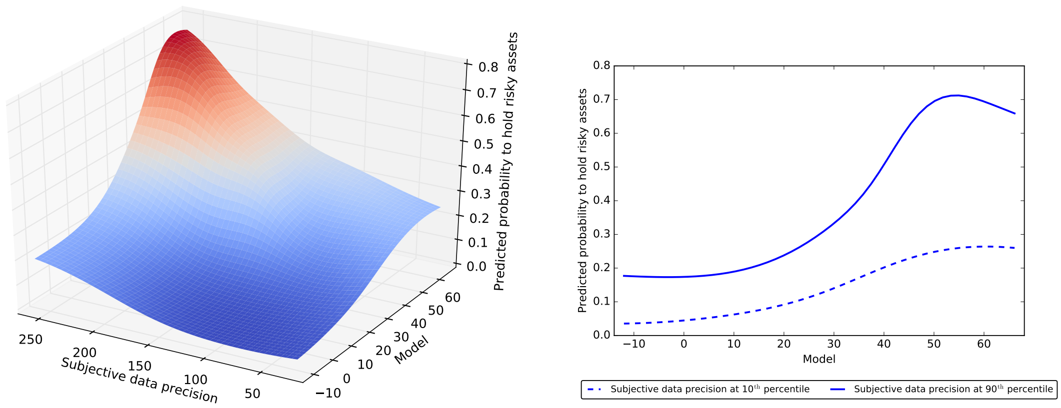
Sources: LISS panel and own calculations. All variables as described in Table 4 in the main text, except that we include the absolute difference between the modal belief in the visual task and the point estimate in the subjective data precision index.

Figure B.5: Joint density of the two indices, errors as absolute difference between modal belief and point estimate



Sources: LISS panel and own calculations. The figure plots the joint density of the estimated indices of the Klein and Vella (2009) model; see Section 2.3 for a detailed description.

Figure B.6: Predicted probability to hold risky assets, errors as absolute difference between modal belief and point estimate



Sources: LISS panel and own calculations. The left panel presents the predicted probability of stock market participation for varying levels of the economic model and subjective data precision indices. The right panel plots the relation between the predicted probability of participation and the economic model index for the 10 and 90% quantiles of the subjective data precision index. Ranges are limited to the interval between the 5% and 95% quantiles of the marginal distributions.

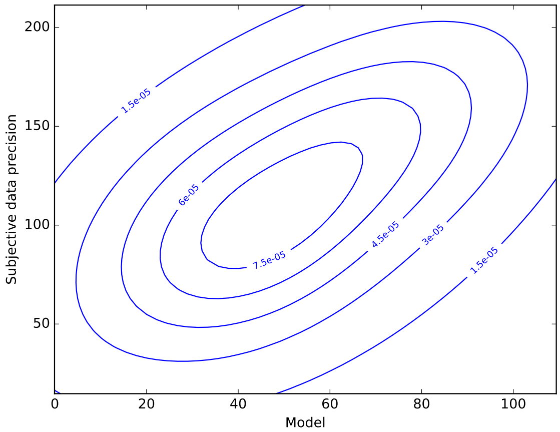
B.4 Redefining errors as absolute difference between median belief in visual task and point estimate

Table B.7: Coefficient estimates for the economic model index and the subjective data precision index, errors as absolute difference between median belief and point estimate

	Model		Subjective data precision	
	Estimate	Std. Err.	Estimate	Std. Err.
Subjective beliefs: $\mu_{t+1}^{\text{AEX}} - \mu_{t+1}^{\text{sav. acc.}}$	1.00	·	·	·
Subjective beliefs: $\sigma_{t+1}^{\text{AEX}}$	-0.32	0.37	·	·
Risk aversion	-9.72	2.28	·	·
Abs. difference between median and point estimate	·	·	-1.00	·
Confidence in AEX return estimate	·	·	115.67	34.37
Confidence in sav. acc. return estimate	·	·	51.37	25.51
Experimental tasks simple	·	·	17.71	14.73
Experimental tasks clear	·	·	29.37	19.82
Financial wealth $\in$ (10000 €, 30000 €]	27.28	7.96	16.97	18.30
Financial wealth $\in$ (30000 €, ∞)	56.30	12.23	83.30	34.01
Financial wealth missing	39.10	9.92	70.00	29.08
Net income > 2500 €	8.39	3.27	-30.59	11.39
Net income missing	-7.66	5.66	0.88	14.65
High education	21.97	5.42	-12.66	11.55
$30 < \text{Age} \leq 50$	21.86	7.76	-34.14	18.12
$50 < \text{Age} \leq 65$	18.10	7.02	2.87	15.62
Age > 65	9.16	6.51	-2.34	16.60

Sources: LISS panel and own calculations. All variables as described in Table 3 in the main text, except that we include the absolute difference between the median belief in the visual task and the point estimate in the subjective data precision index.

Figure B.7: Joint density of the two indices, errors as absolute difference between median belief and point estimate



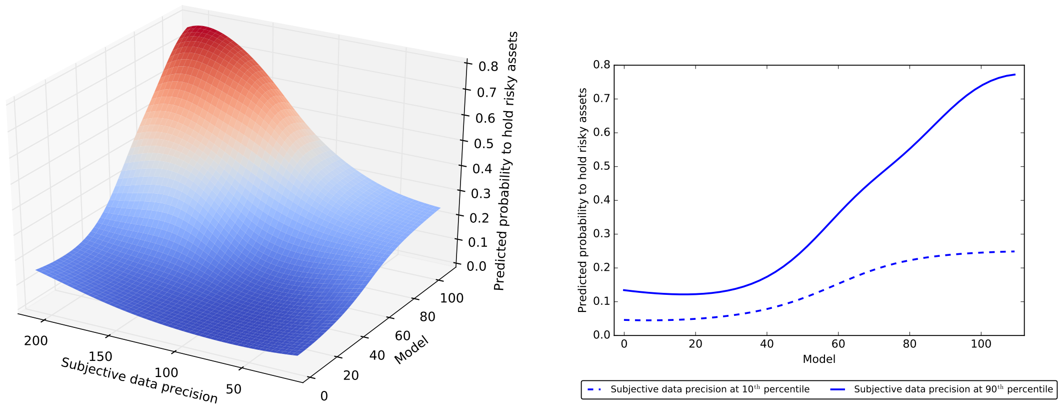
Sources: LISS panel and own calculations. The figure plots the joint density of the estimated indices of the Klein and Vella (2009) model; see Section 2.3 for a detailed description.

Table B.8: Average partial effects, errors as absolute difference between median belief and point estimate

	Model	Subj. data prec.	Combined
Subjective beliefs: $\mu_{t+1}^{\text{AEX}} - \mu_{t+1}^{\text{sav. acc.}}$	0.031	·	0.031
Subjective beliefs: $\sigma_{t+1}^{\text{AEX}}$	-0.005	·	-0.005
Risk aversion	-0.037	·	-0.037
Abs. difference between median and point estimate	·	-0.013	-0.013
Confidence in AEX return estimate	·	0.019	0.019
Confidence in sav. acc. return estimate	·	0.011	0.011
Experimental tasks simple	·	0.005	0.005
Experimental tasks clear	·	0.007	0.007
Financial wealth $\in$ (10000 €, 30000 €]	0.100	0.020	0.095
Financial wealth $\in$ (30000 €, ∞)	0.254	0.116	0.368
Financial wealth missing	0.163	0.100	0.241
Net income > 2500 €	0.035	-0.023	0.012
Net income missing	-0.030	0.001	-0.029
High education	0.101	-0.011	0.090
30 < Age ≤ 50	0.086	-0.037	0.049
50 < Age ≤ 65	0.071	0.003	0.078
Age > 65	0.035	-0.002	0.036

Sources: LISS panel and own calculations. All variables as described in Table 4 in the main text, except that we include the absolute difference between the median belief in the visual task and the point estimate in the subjective data precision index.

Figure B.8: Predicted probability to hold risky assets, errors as absolute difference between median belief and point estimate



Sources: LISS panel and own calculations. The left panel presents the predicted probability of stock market participation for varying levels of the economic model and subjective data precision indices. The right panel plots the relation between the predicted probability of participation and the economic model index for the 10 and 90% quantiles of the subjective data precision index. Ranges are limited to the interval between the 5% and 95% quantiles of the marginal distributions.

B.5 Redefining errors as minimum of absolute differences between mean, median, and modal belief in visual task and point estimate

It is possible that respondents differ in their understanding of our question for a point estimate of the AEX. While some may think that this corresponds to a question concerning the expected mean, others may think we are asking for the expected mode or median. To give respondents the benefit of the doubt when calculating the absolute error, we also estimate one specification where we base the latter calculation on the moment that minimizes the absolute difference. That is, for each respondent we select the moment (mean, mode, median) that is absolutely closest to the mean from the ball allocation task. Based on this moment, we then calculate the absolute difference in beliefs that enters the subjective data precision index.

Table B.9: Coefficient estimates for the economic model index and the subjective data precision index, errors as absolute difference between median belief and point estimate

	Model		Subjective data precision	
	Estimate	Std. Err.	Estimate	Std. Err.
Subjective beliefs: $\mu_{t+1}^{\text{AEX}} - \mu_{t+1}^{\text{sav. acc.}}$	1.00	·	·	·
Subjective beliefs: $\sigma_{t+1}^{\text{AEX}}$	-0.75	0.29	·	·
Risk aversion	-7.75	1.68	·	·
Minimal abs. diff. between point estimate and lognormal mean/mode/median	·	·	-1.00	·
Confidence in AEX return estimate	·	·	51.82	25.51
Confidence in sav. acc. return estimate	·	·	25.98	19.85
Experimental tasks simple	·	·	48.88	18.17
Experimental tasks clear	·	·	16.05	17.29
Financial wealth ∈ (10000 €, 30000 €]	19.90	5.82	18.28	20.09
Financial wealth ∈ (30000 €, ∞)	42.33	8.78	84.09	33.32
Financial wealth missing	29.72	7.04	54.21	25.53
Net income > 2500 €	7.16	2.59	-26.02	10.60
Net income missing	-6.00	4.10	4.18	12.19
High education	3.44	2.94	57.99	16.98
30 < Age ≤ 50	11.30	5.33	-20.67	15.69
50 < Age ≤ 65	6.69	5.36	15.96	14.29
Age > 65	-0.98	5.11	22.86	15.88

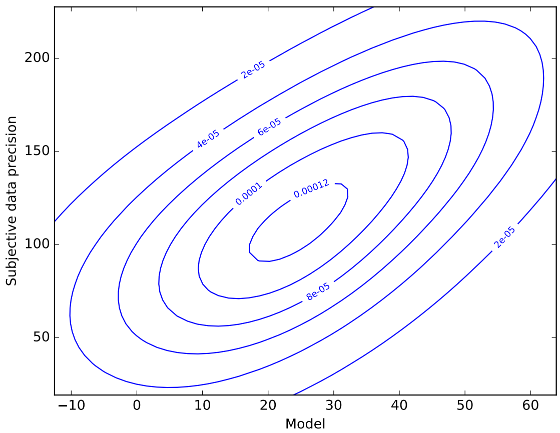
Sources: LISS panel and own calculations. All variables as described in Table 3 in the main text, except that we include the minimum of the absolute differences between the mean, median, or modal belief in the visual task and the point estimate in the subjective data precision index.

Table B.10: Average partial effects, errors as absolute difference between median belief and point estimate

	Model	Subj. data prec.	Combined
Subjective beliefs: $\mu_{t+1}^{\text{AEX}} - \mu_{t+1}^{\text{sav. acc.}}$	0.034	·	0.034
Subjective beliefs: $\sigma_{t+1}^{\text{AEX}}$	-0.014	·	-0.014
Risk aversion	-0.037	·	-0.037
Minimal abs. diff. between point estimate and lognormal mean/mode/median	·	-0.014	-0.014
Confidence in AEX return estimate	·	0.013	0.013
Confidence in sav. acc. return estimate	·	0.007	0.007
Experimental tasks simple	·	0.019	0.019
Experimental tasks clear	·	0.005	0.005
Financial wealth $\in$ (10000 €, 30000 €]	0.097	0.017	0.097
Financial wealth $\in$ (30000 €, ∞)	0.244	0.118	0.370
Financial wealth missing	0.169	0.069	0.217
Net income $>$ 2500 €	0.036	-0.027	0.009
Net income missing	-0.029	0.005	-0.025
High education	0.017	0.079	0.096
$30 < \text{Age} \leq 50$	0.053	-0.024	0.023
$50 < \text{Age} \leq 65$	0.033	0.020	0.052
Age $>$ 65	-0.005	0.029	0.018

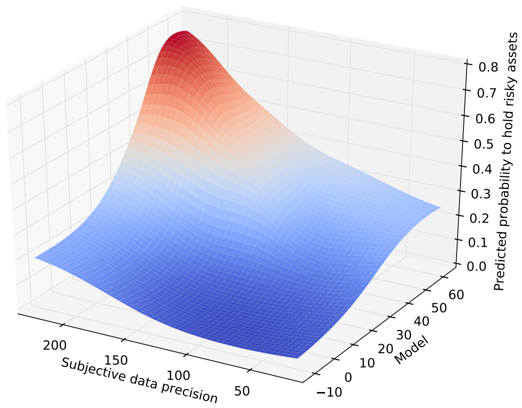
Sources: LISS panel and own calculations. All variables as described in Table 4 in the main text, except that we include the minimum of the absolute differences between the mean, median, or modal belief in the visual task and the point estimate in the subjective data precision index.

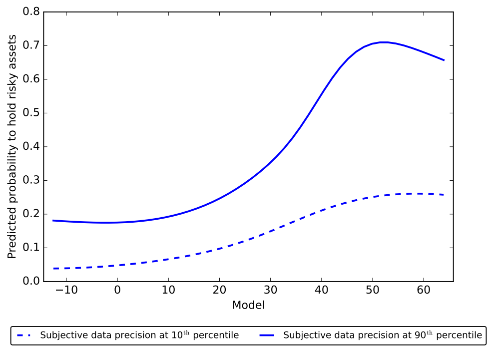
Figure B.9: Joint density of the two indices, errors as absolute difference between median belief and point estimate



Sources: LISS panel and own calculations. The figure plots the joint density of the estimated indices of the Klein and Vella (2009) model; see Section 2.3 for a detailed description.

Figure B.10: Predicted probability to hold risky assets, errors as absolute difference between median belief and point estimate





Sources: LISS panel and own calculations. The left panel presents the predicted probability of stock market participation for varying levels of the economic model and subjective data precision indices. The right panel plots the relation between the predicted probability of participation and the economic model index for the 10 and 90% quantiles of the subjective data precision index. Ranges are limited to the interval between the 5% and 95% quantiles of the marginal distributions.

B.6 Additional covariates

Table B.11: Coefficient estimates for the economic model index and the subjective data precision index, model with additional covariates

	Model		Subjective data precision	
	Estimate	Std. Err.	Estimate	Std. Err.
Subjective beliefs: $\mu_{t+1}^{\text{AEX}} - \mu_{t+1}^{\text{sav. acc.}}$	1.00	·	·	·
Subjective beliefs: $\sigma_{t+1}^{\text{AEX}}$	-0.80	0.28	·	·
Risk aversion	-7.83	2.07	·	·
Absolute difference between belief measures	·	·	-1.00	·
Confidence in AEX return estimate	·	·	51.54	26.19
Confidence in sav. acc. return estimate	·	·	37.05	24.08
Experimental tasks simple	·	·	52.54	18.38
Experimental tasks clear	·	·	16.92	17.82
Financial wealth $\in$ (10000 €, 30000 €]	19.96	6.24	18.44	18.62
Financial wealth $\in$ (30000 €, ∞)	42.37	9.73	87.41	31.09
Financial wealth missing	30.13	7.82	57.80	24.63
Net income $>$ 2500 €	8.70	2.81	-23.25	10.90
Net income missing	-6.65	4.03	6.53	12.74
High education	2.31	3.16	62.53	17.41
$30 < \text{Age} \leq 50$	12.06	6.05	-18.98	18.35
$50 < \text{Age} \leq 65$	7.78	6.21	21.00	16.74
$\text{Age} > 65$	1.20	6.25	27.94	18.28
Female	-0.57	2.69	-0.12	8.33
Married	-4.21	2.53	-11.37	8.83
Has children	3.65	3.24	-5.12	9.45

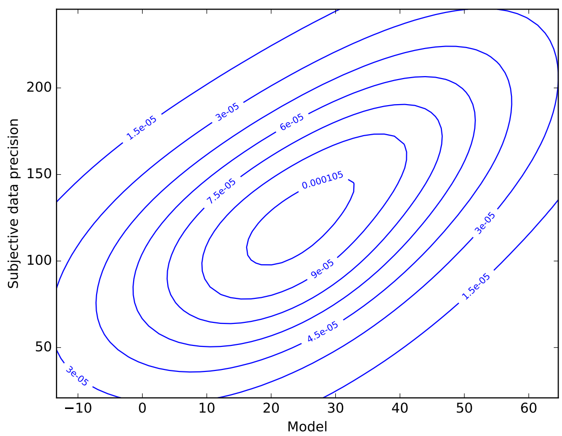
Sources: LISS panel and own calculations. All variables as described in Table 3 in the main text, except for the female, marriage, and having children dummies.

Table B.12: Average partial effects, model with additional covariates

	Model	Subj. data prec.	Combined
Subjective beliefs: $\mu_{t+1}^{\text{AEX}} - \mu_{t+1}^{\text{sav. acc.}}$	0.034	·	0.034
Subjective beliefs: $\sigma_{t+1}^{\text{AEX}}$	-0.015	·	-0.015
Risk aversion	-0.037	·	-0.037
Absolute difference between belief measures	·	-0.014	-0.014
Confidence in AEX return estimate	·	0.013	0.013
Confidence in sav. acc. return estimate	·	0.010	0.010
Experimental tasks simple	·	0.020	0.020
Experimental tasks clear	·	0.005	0.005
Financial wealth $\in$ (10000 €, 30000 €]	0.099	0.017	0.097
Financial wealth $\in$ (30000 €, ∞)	0.245	0.119	0.369
Financial wealth missing	0.172	0.073	0.224
Net income $>$ 2500 €	0.044	-0.025	0.019
Net income missing	-0.032	0.007	-0.026
High education	0.011	0.083	0.095
$30 <$ Age ≤ 50	0.057	-0.022	0.029
$50 <$ Age ≤ 65	0.038	0.026	0.062
Age > 65	0.006	0.035	0.035
Female	-0.003	-0.000	-0.003
Married	-0.019	-0.013	-0.032
Has children	0.017	-0.006	0.011

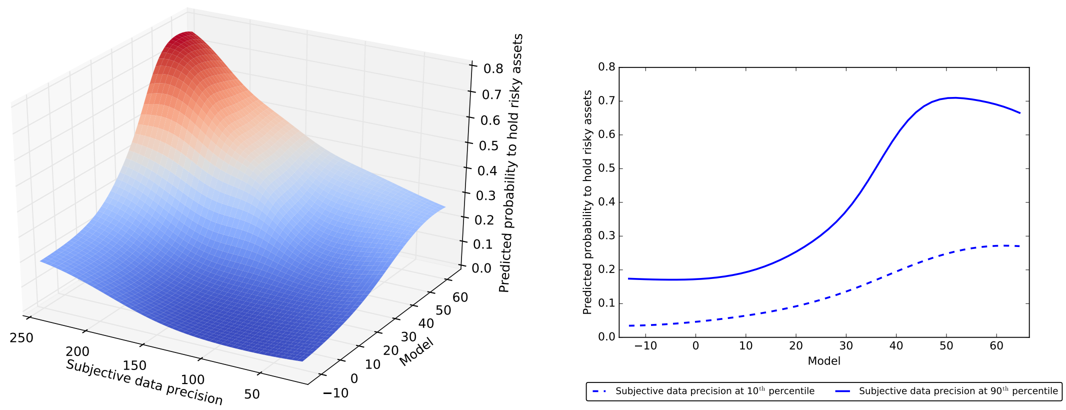
Sources: LISS panel and own calculations. All variables as described in Table 4 in the main text, except for the female, marriage, and having children dummies.

Figure B.11: Joint density of the two indices, model with additional covariates



Sources: LISS panel and own calculations. The figure plots the joint density of the estimated indices of the Klein and Vella (2009) model; see Section 2.3 for a detailed description.

Figure B.12: Predicted probability to hold risky assets, model with additional covariates



Sources: LISS panel and own calculations. The left panel presents the predicted probability of stock market participation for varying levels of the economic model and subjective data precision indices. The right panel plots the relation between the predicted probability of participation and the economic model index for the 10 and 90% quantiles of the subjective data precision index. Ranges are limited to the interval between the 5% and 95% quantiles of the marginal distributions.

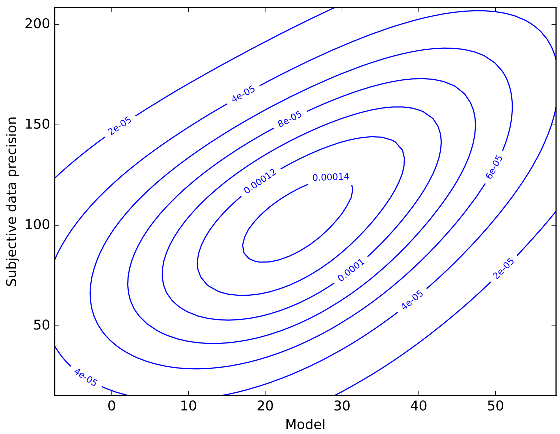
B.7 Expected return instead of expected excess return

Table B.13: Coefficient estimates for the economic model index and the subjective data precision index, expected returns instead of expected excess returns

	Model		Subjective data precision	
	Estimate	Std. Err.	Estimate	Std. Err.
Subjective beliefs: μ_{t+1}^{AEX}	1.00	·	·	·
Subjective beliefs: $\sigma_{t+1}^{\text{AEX}}$	-0.78	0.31	·	·
Risk aversion	-6.75	1.90	·	·
Absolute difference between belief measures	·	·	-1.00	·
Confidence in AEX return estimate	·	·	45.85	23.05
Confidence in sav. acc. return estimate	·	·	31.25	22.13
Experimental tasks simple	·	·	47.26	15.93
Experimental tasks clear	·	·	12.89	15.44
Financial wealth $\in$ (10000 €, 30000 €]	17.94	5.66	6.43	18.80
Financial wealth $\in$ (30000 €, ∞)	37.84	9.73	66.29	28.44
Financial wealth missing	26.49	7.67	39.04	22.69
Net income > 2500 €	6.59	2.64	-21.50	9.34
Net income missing	-5.26	4.08	5.65	12.90
High education	2.36	3.34	55.44	15.69
30 < Age $\leq$ 50	10.69	4.97	-19.31	13.88
50 < Age $\leq$ 65	5.36	4.67	16.10	13.15
Age > 65	-1.69	4.78	24.45	15.26

Sources: LISS panel and own calculations. All variables as described in Table 3 in the main text, except that we replace the expected excess return with the expected return.

Figure B.13: Joint density of the two indices, expected returns instead of expected excess returns



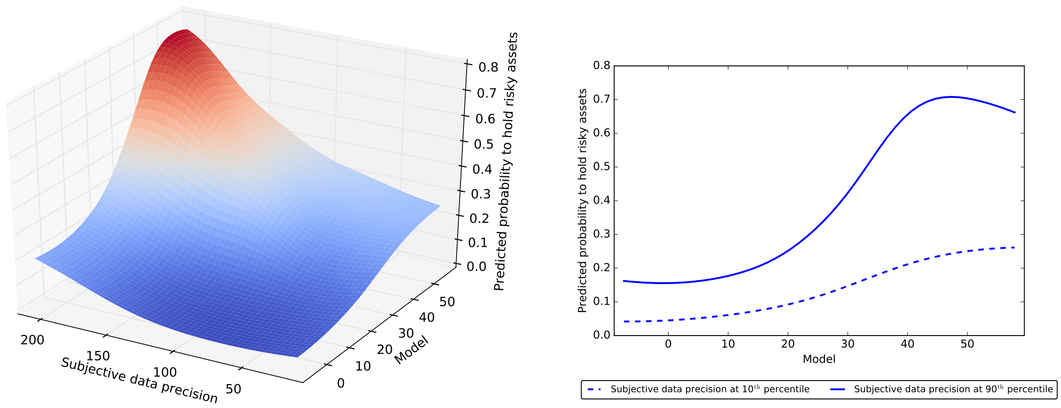
Sources: LISS panel and own calculations. The figure plots the joint density of the estimated indices of the Klein and Vella (2009) model; see Section 2.3 for a detailed description.

Table B.14: Average partial effects, expected returns instead of expected excess returns

	Model	Subj. data prec.	Combined
Subjective beliefs: μ_{t+1}^{AEX}	0.029	·	0.029
Subjective beliefs: $\sigma_{t+1}^{\text{AEX}}$	-0.016	·	-0.016
Risk aversion	-0.036	·	-0.036
Absolute difference between belief measures	·	-0.017	-0.017
Confidence in AEX return estimate	·	0.014	0.014
Confidence in sav. acc. return estimate	·	0.011	0.011
Experimental tasks simple	·	0.022	0.022
Experimental tasks clear	·	0.005	0.005
Financial wealth $\in$ (10000 €, 30000 €]	0.105	0.008	0.096
Financial wealth $\in$ (30000 €, ∞)	0.251	0.109	0.370
Financial wealth missing	0.176	0.059	0.217
Net income > 2500 €	0.036	-0.028	0.009
Net income missing	-0.028	0.008	-0.022
High education	0.012	0.089	0.103
$30 < \text{Age} \leq 50$	0.054	-0.026	0.020
$50 < \text{Age} \leq 65$	0.029	0.024	0.052
Age > 65	-0.010	0.037	0.019

Sources: LISS panel and own calculations. All variables as described in Table 4 in the main text, except that we replace the expected excess return with the expected return.

Figure B.14: Predicted probability to hold risky assets, expected returns instead of expected excess returns



Sources: LISS panel and own calculations. The left panel presents the predicted probability of stock market participation for varying levels of the economic model and subjective data precision indices. The right panel plots the relation between the predicted probability of participation and the economic model index for the 10 and 90% quantiles of the subjective data precision index. Ranges are limited to the interval between the 5% and 95% quantiles of the marginal distributions.

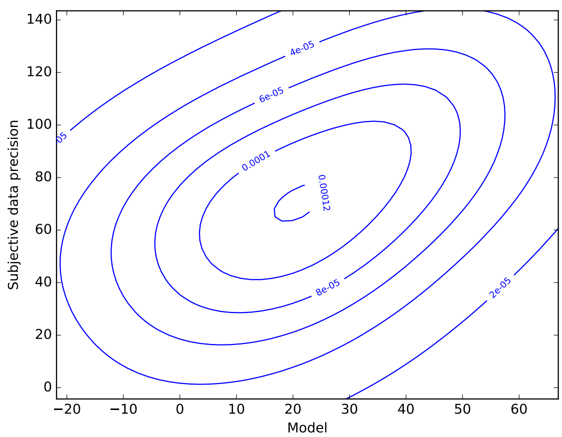
B.8 Discarding individuals with missing data on financial wealth

Table B.15: Coefficient estimates for the economic model index and the subjective data precision index, sample restricted to individuals with available information on financial wealth

	Model		Subjective data precision	
	Estimate	Std. Err.	Estimate	Std. Err.
Subjective beliefs: $\mu_{t+1}^{\text{AEX}} - \mu_{t+1}^{\text{sav. acc.}}$	1.00	·	·	·
Subjective beliefs: $\sigma_{t+1}^{\text{AEX}}$	-0.88	0.42	·	·
Risk aversion	-10.58	2.81	·	·
Absolute difference between belief measures	·	·	-1.00	·
Confidence in AEX return estimate	·	·	46.82	30.49
Confidence in sav. acc. return estimate	·	·	14.32	24.68
Experimental tasks simple	·	·	33.68	18.29
Experimental tasks clear	·	·	17.08	19.59
Financial wealth $\in$ (10000 €, 30000 €]	24.74	8.33	5.17	19.45
Financial wealth $\in$ (30000 €, ∞)	49.20	13.27	40.53	28.97
Net income $>$ 2500 €	6.61	3.98	-24.29	13.32
Net income missing	-10.30	9.50	19.90	14.46
High education	-2.11	4.85	41.00	16.02
$30 < \text{Age} \leq 50$	11.71	11.40	-29.88	25.23
$50 < \text{Age} \leq 65$	1.32	9.20	7.56	18.05
$\text{Age} > 65$	-6.13	8.52	19.20	18.63

Sources: LISS panel and own calculations. All variables as described in Table 3 in the main text. The model excludes respondents with missing information on financial wealth.

Figure B.15: Joint density of the two indices, sample restricted to individuals with available information on financial wealth



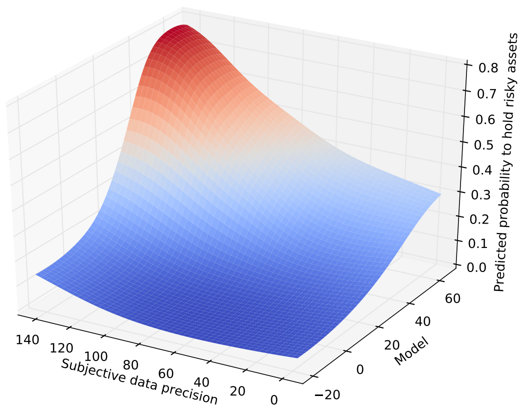
Sources: LISS panel and own calculations. The figure plots the joint density of the estimated indices of the Klein and Vella (2009) model; see Section 2.3 for a detailed description.

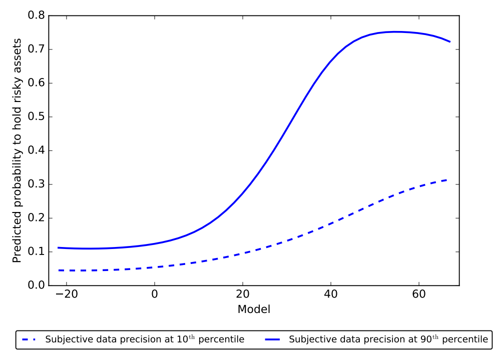
Table B.16: Average partial effects, sample restricted to individuals with available information on financial wealth

	Model	Subj. data prec.	Combined
Subjective beliefs: $\mu_{t+1}^{\text{AEX}} - \mu_{t+1}^{\text{sav. acc.}}$	0.032	·	0.032
Subjective beliefs: $\sigma_{t+1}^{\text{AEX}}$	-0.015	·	-0.015
Risk aversion	-0.046	·	-0.046
Absolute difference between belief measures	·	-0.021	-0.021
Confidence in AEX return estimate	·	0.018	0.018
Confidence in sav. acc. return estimate	·	0.006	0.006
Experimental tasks simple	·	0.019	0.019
Experimental tasks clear	·	0.007	0.007
Financial wealth $\in$ (10000 €, 30000 €]	0.062	0.008	0.069
Financial wealth $\in$ (30000 €, ∞)	0.281	0.088	0.376
Net income > 2500 €	0.029	-0.039	-0.010
Net income missing	-0.045	0.033	-0.018
High education	-0.009	0.081	0.071
$30 < \text{Age} \leq 50$	0.045	-0.051	-0.011
$50 < \text{Age} \leq 65$	0.006	0.015	0.020
Age > 65	-0.027	0.038	0.005

Sources: LISS panel and own calculations. All variables as described in Table 4 in the main text. The model excludes respondents with missing information on financial wealth.

Figure B.16: Predicted probability to hold risky assets, sample restricted to individuals with available information on financial wealth





Sources: LISS panel and own calculations. The left panel presents the predicted probability of stock market participation for varying levels of the economic model and subjective data precision indices. The right panel plots the relation between the predicted probability of participation and the economic model index for the 10 and 90% quantiles of the subjective data precision index. Ranges are limited to the interval between the 5% and 95% quantiles of the marginal distributions.

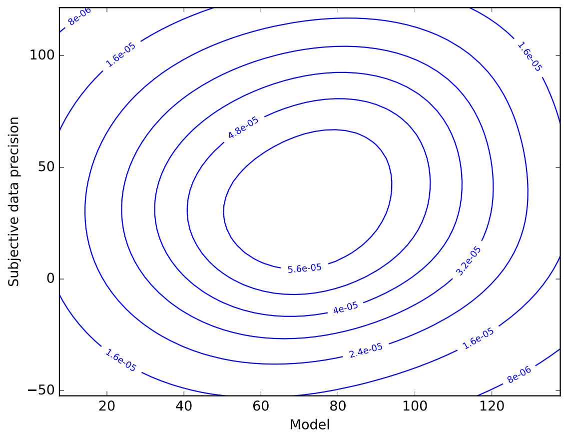
B.9 Alternative belief measure

Table B.17: Coefficient estimates for the economic model index and the subjective data precision index, Philips instead of AEX

	Model		Subjective data precision	
	Estimate	Std. Err.	Estimate	Std. Err.
Subjective beliefs: $\mu_{t+1}^{\text{Philips}} - \mu_{t+1}^{\text{sav. acc.}}$	1.00	·	·	·
Subjective beliefs: $\sigma_{t+1}^{\text{Philips}}$	-0.14	0.56	·	·
Risk aversion	-12.35	4.04	·	·
Absolute difference between belief measures	·	·	-1.00	·
Confidence in Philips return estimate	·	·	-28.02	18.37
Confidence in sav. acc. return estimate	·	·	42.10	20.81
Experimental tasks simple	·	·	62.92	25.52
Experimental tasks clear	·	·	15.90	15.59
Financial wealth ∈ (10000 €, 30000 €]	28.70	15.99	30.11	27.42
Financial wealth ∈ (30000 €, ∞)	68.81	26.01	45.37	40.18
Financial wealth missing	53.61	21.84	30.08	33.58
Net income > 2500 €	14.13	7.28	-31.39	16.74
Net income missing	-19.59	13.31	24.31	26.45
High education	21.33	8.62	-1.78	10.38
$30 < \text{Age} \leq 50$	40.76	15.69	-60.11	29.46
$50 < \text{Age} \leq 65$	12.91	10.77	19.87	18.50
$\text{Age} > 65$	27.47	13.46	-32.20	21.18

Sources: LISS panel and own calculations. All variables as described in Table 3 in the main text, except for the belief measures pertaining to Philips N.V..

Figure B.17: Joint density of the two indices, Philips instead of AEX



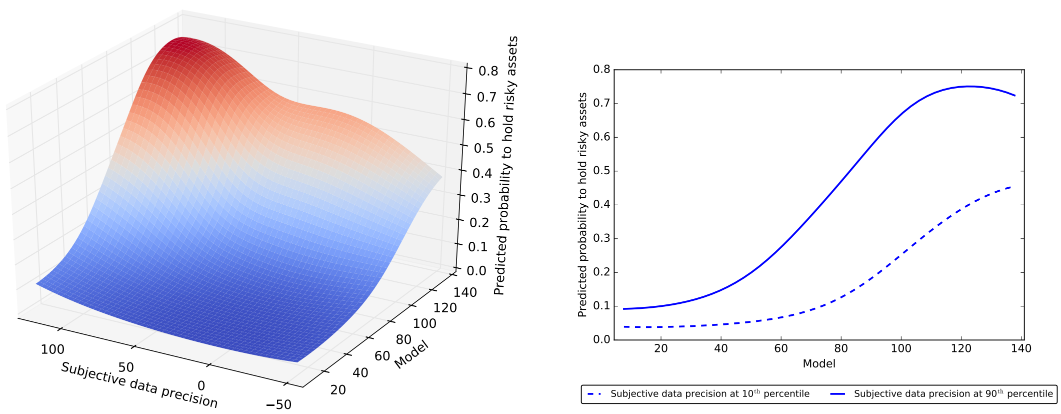
Sources: LISS panel and own calculations. The figure plots the joint density of the estimated indices of the Klein and Vella (2009) model; see Section 2.3 for a detailed description.

Table B.18: Average partial effects, Philips instead of AEX

	Model	Subj. data prec.	Combined
Subjective beliefs: $\mu_{t+1}^{\text{Philips}} - \mu_{t+1}^{\text{sav. acc.}}$	0.030	·	0.030
Subjective beliefs: $\sigma_{t+1}^{\text{Philips}}$	-0.002	·	-0.002
Risk aversion	-0.046	·	-0.046
Absolute difference between belief measures	·	-0.023	-0.023
Confidence in Philips return estimate	·	-0.008	-0.008
Confidence in sav. acc. return estimate	·	0.015	0.015
Experimental tasks simple	·	0.030	0.030
Experimental tasks clear	·	0.006	0.006
Financial wealth ∈ (10000 €, 30000 €]	0.090	0.045	0.109
Financial wealth ∈ (30000 €, ∞)	0.313	0.071	0.377
Financial wealth missing	0.224	0.045	0.249
Net income > 2500 €	0.058	-0.037	0.018
Net income missing	-0.073	0.034	-0.042
High education	0.091	-0.002	0.088
30 < Age ≤ 50	0.144	-0.088	0.064
50 < Age ≤ 65	0.042	0.042	0.087
Age > 65	0.095	-0.059	0.043

Sources: LISS panel and own calculations. All variables as described in Table 4 in the main text, except for the belief measures pertaining to Philips N.V..

Figure B.18: Predicted probability to hold risky assets, Philips instead of AEX



Sources: LISS panel and own calculations. The left panel presents the predicted probability of stock market participation for varying levels of the economic model and subjective data precision indices. The right panel plots the relation between the predicted probability of participation and the economic model index for the 10 and 90% quantiles of the subjective data precision index. Ranges are limited to the interval between the 5% and 95% quantiles of the marginal distributions.

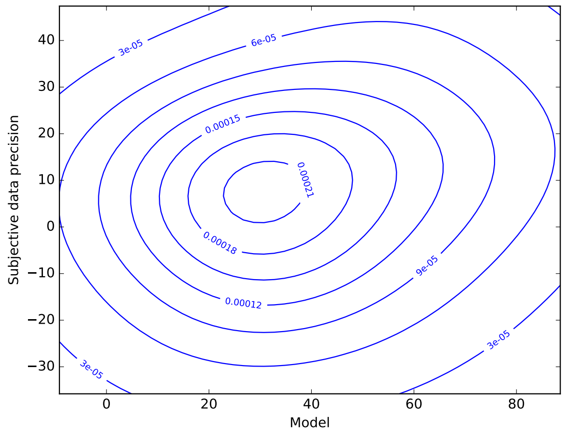
B.10 Disaggregated risk aversion measures

Table B.19: Coefficient estimates for the economic model index and the subjective data precision index, separate risk measures

	Model		Subjective data precision	
	Estimate	Std. Err.	Estimate	Std. Err.
Subjective beliefs: $\mu_{t+1}^{\text{AEX}} - \mu_{t+1}^{\text{sav. acc.}}$	1.00	·	·	·
Subjective beliefs: $\sigma_{t+1}^{\text{AEX}}$	-0.82	0.43	·	·
Aversion to risks in general	4.69	2.12	·	·
Aversion to financial risks	-15.09	3.50	·	·
Risk aversion index based on staircase lottery task	-0.34	1.38	·	·
Absolute difference between belief measures	·	·	-1.00	·
Confidence in AEX return estimate	·	·	9.42	13.00
Confidence in sav. acc. return estimate	·	·	20.12	12.18
Experimental tasks simple	·	·	0.67	7.37
Experimental tasks clear	·	·	21.56	9.24
Financial wealth $\in$ (10000 €, 30000 €]	23.88	6.75	-6.29	9.62
Financial wealth $\in$ (30000 €, ∞)	44.26	11.30	28.19	13.78
Financial wealth missing	35.36	8.48	10.64	10.83
Net income $>$ 2500 €	7.08	3.23	-7.34	3.92
Net income missing	-6.27	5.27	-5.52	5.75
High education	17.67	5.67	-26.77	5.55
$30 < \text{Age} \leq 50$	15.37	7.05	-12.49	13.51
$50 < \text{Age} \leq 65$	15.08	6.87	-13.12	13.85
$\text{Age} > 65$	4.92	6.08	-1.93	13.09

Sources: LISS panel and own calculations. All variables as described in Table 3 in the main text, except for the disaggregated risk aversion measure.

Figure B.19: Joint density of the two indices, separate risk measures



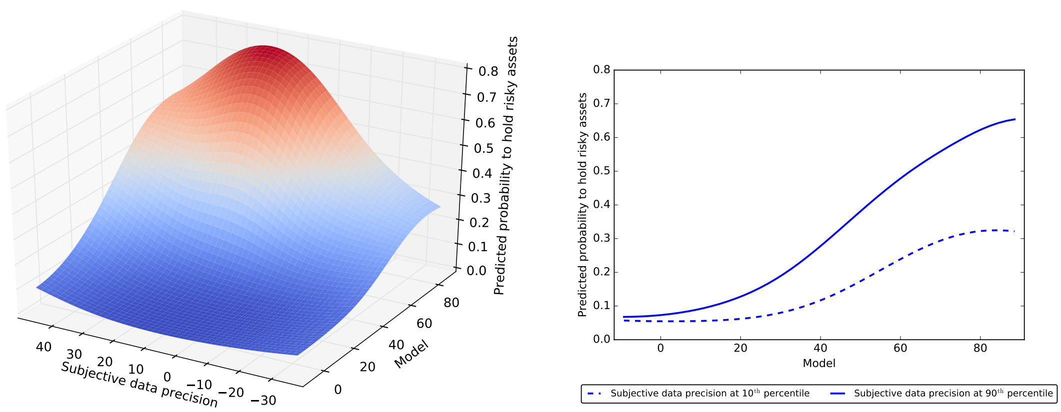
Sources: LISS panel and own calculations. The figure plots the joint density of the estimated indices of the Klein and Vella (2009) model; see Section 2.3 for a detailed description.

Table B.20: Average partial effects, separate risk measures

	Model	Subj. data prec.	Combined
Subjective beliefs: $\mu_{t+1}^{\text{AEX}} - \mu_{t+1}^{\text{sav. acc.}}$	0.041	·	0.041
Subjective beliefs: $\sigma_{t+1}^{\text{AEX}}$	-0.016	·	-0.016
Aversion to risks in general	0.024	·	0.024
Aversion to financial risks	-0.070	·	-0.070
Risk aversion index based on staircase lottery task	-0.001	·	-0.001
Absolute difference between belief measures	·	-0.024	-0.024
Confidence in AEX return estimate	·	0.004	0.004
Confidence in sav. acc. return estimate	·	0.007	0.007
Experimental tasks simple	·	0.001	0.001
Experimental tasks clear	·	0.008	0.008
Financial wealth $\in$ (10000 €, 30000 €]	0.121	-0.018	0.091
Financial wealth $\in$ (30000 €, ∞)	0.273	0.091	0.367
Financial wealth missing	0.205	0.035	0.234
Net income > 2500 €	0.037	-0.010	0.027
Net income missing	-0.031	-0.009	-0.039
High education	0.104	-0.016	0.079
$30 < \text{Age} \leq 50$	0.076	-0.017	0.061
$50 < \text{Age} \leq 65$	0.074	-0.018	0.058
Age > 65	0.023	-0.002	0.022

Sources: LISS panel and own calculations. All variables as described in Table 4 in the main text, except for the disaggregated risk aversion measure.

Figure B.20: Predicted probability to hold risky assets, separate risk measures



Sources: LISS panel and own calculations. The left panel presents the predicted probability of stock market participation for varying levels of the economic model and subjective data precision indices. The right panel plots the relation between the predicted probability of participation and the economic model index for the 10 and 90% quantiles of the subjective data precision index. Ranges are limited to the interval between the 5% and 95% quantiles of the marginal distributions.

B.11 Moments of the belief distribution calculated using uniformly distributed expectations within bins

The simplest way to approximate the individual-specific distribution of beliefs is to assume that respondents' expectations are uniformly distributed within bins. To calculate moments under this assumption, we need to assign values to the outer bounds of the exterior bins. We fix these bounds at the value a 100 € investment would have had at the 2.5% and 97.5% percentile of the AEX's historical return distribution, 49.6 € and 151.3 €. We then compute the moments of the distribution assuming that the balls are uniformly distributed within each of the resulting 8 intervals.

Table B.21: Coefficient estimates for the economic model index and the subjective data precision index, moments of beliefs calculated assuming uniform distributions within bins

	Model		Subjective data precision	
	Estimate	Std. Err.	Estimate	Std. Err.
Subjective beliefs (uniform): Expected excess return	1.00	·	·	·
Subjective beliefs (uniform): Expected standard deviation	-0.74	0.23	·	·
Risk aversion	-7.05	1.51	·	·
Absolute difference between belief measures	·	·	-1.00	·
Confidence in AEX return estimate	·	·	58.17	25.87
Confidence in sav. acc. return estimate	·	·	23.64	20.32
Experimental tasks simple	·	·	53.21	18.67
Experimental tasks clear	·	·	13.07	16.20
Financial wealth $\in$ (10000 €, 30000 €]	17.85	5.29	13.48	19.58
Financial wealth $\in$ (30000 €, ∞)	39.32	8.07	78.00	31.33
Financial wealth missing	26.61	6.31	49.33	24.11
Net income > 2500 €	6.81	2.40	-27.39	10.55
Net income missing	-5.45	3.98	6.40	13.14
High education	3.76	2.81	57.88	17.96
$30 < \text{Age} \leq 50$	11.07	5.21	-22.30	16.27
$50 < \text{Age} \leq 65$	7.15	5.19	14.99	14.77
Age > 65	-0.28	4.91	22.52	15.93

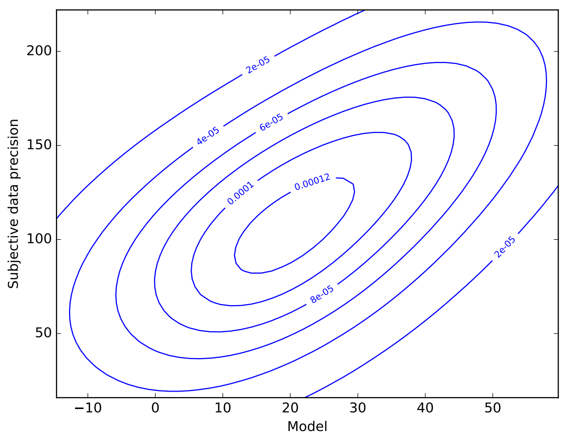
Sources: LISS panel and own calculations. All variables as described in Table 3 in the main text, except for the way of calculating moments of beliefs.

Table B.22: Average partial effects, moments of beliefs calculated assuming uniform distributions within bins

	Model	Subj. data prec.	Combined
Subjective beliefs (uniform): Expected excess return	0.040	·	0.040
Subjective beliefs (uniform): Expected standard deviation	-0.016	·	-0.016
Risk aversion	-0.037	·	-0.037
Absolute difference between belief measures	·	-0.014	-0.014
Confidence in AEX return estimate	·	0.014	0.014
Confidence in sav. acc. return estimate	·	0.006	0.006
Experimental tasks simple	·	0.019	0.019
Experimental tasks clear	·	0.004	0.004
Financial wealth ∈ (10000 €, 30000 €]	0.096	0.013	0.095
Financial wealth ∈ (30000 €, ∞)	0.252	0.105	0.367
Financial wealth missing	0.166	0.061	0.209
High education	0.020	0.074	0.094
Net income > 2500 €	0.038	-0.027	0.012
Net income missing	-0.029	0.007	-0.023
30 < Age ≤ 50	0.059	-0.024	0.028
50 < Age ≤ 65	0.039	0.018	0.056
Age > 65	-0.002	0.026	0.019

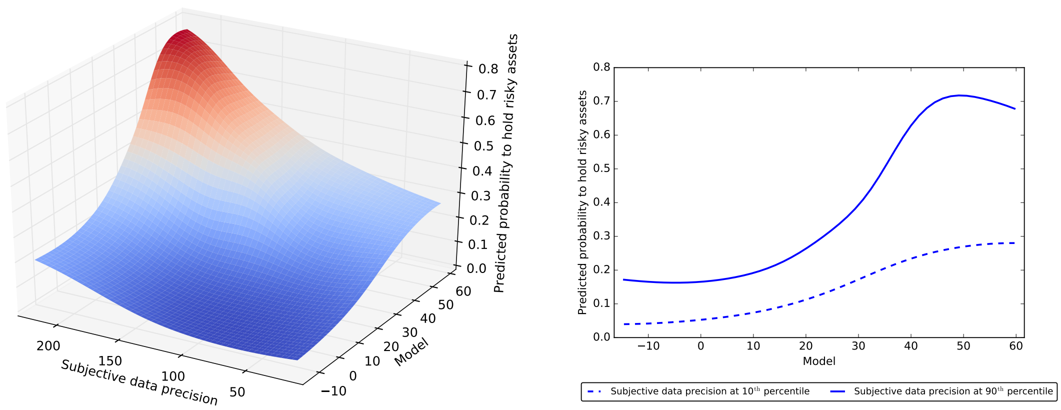
Sources: LISS panel and own calculations. All variables as described in Table 4 in the main text, except for the way of calculating moments of beliefs.

Figure B.21: Joint density of the two indices, moments of beliefs calculated assuming uniform distributions within bins



Sources: LISS panel and own calculations. The figure plots the joint density of the estimated indices of the Klein and Vella (2009) model; see Section 2.3 for a detailed description.

Figure B.22: Predicted probability to hold risky assets, moments of beliefs calculated assuming uniform distributions within bins



Sources: LISS panel and own calculations. The left panel presents the predicted probability of stock market participation for varying levels of the economic model and subjective data precision indices. The right panel plots the relation between the predicted probability of participation and the economic model index for the 10 and 90% quantiles of the subjective data precision index. Ranges are limited to the interval between the 5% and 95% quantiles of the marginal distributions.

B.12 Moments of the belief distribution calculated using piecewise cubic Hermite interpolating splines

We also approximate individual belief distributions using piecewise cubic Hermite interpolating splines, very similar to the method proposed in Bellemare, Bissonnette, and Kröger (2012). For each respondent, we first calculate a discrete cumulative distribution function by successively summing the probabilities assigned to each of the 8 bins. The method is less sensitive to the assumptions concerning the support of the exterior bins, so we fix these at more conservative values (the minimum and maximum of the AEX's historical return distribution over a calendar year, i.e., 47.0 € and 176.9 €). We then use a Hermite spline to connect the 9 points on the resulting CDF. The spline interpolates the CDF between each pair of neighboring points by a monotonically increasing cubic polynomial, whose first derivative at each of the 7 interior points coincides with the respective first derivative of the polynomial in the next-higher interval. We employ the resulting estimate of an indivual's belief distribution to calculate the mean and standard deviation of the individual's return estimate.[1]

Table B.23: Coefficient estimates for the economic model index and the subjective data precision index, moments of beliefs calculated by approximating the distribution using splines

	Model		Subjective data precision	
	Estimate	Std. Err.	Estimate	Std. Err.
Subjective beliefs (Splines): Expected excess return	1.00	·	·	·
Subjective beliefs (Splines): Expected standard deviation	-0.72	0.17	·	·
Risk aversion	-7.06	1.45	·	·
Absolute difference between belief measures	·	·	-1.00	·
Confidence in AEX return estimate	·	·	58.86	26.59
Confidence in sav. acc. return estimate	·	·	24.09	22.15
Experimental tasks simple	·	·	53.36	18.37
Experimental tasks clear	·	·	11.37	16.88
Financial wealth $\in$ (10000 €, 30000 €]	19.71	5.19	3.02	21.04
Financial wealth $\in$ (30000 €, ∞)	41.11	7.29	67.26	31.56
Financial wealth missing	28.65	6.01	38.22	25.19
Net income $>$ 2500 €	6.92	2.45	-27.05	10.76
Net income missing	-6.25	3.94	8.91	13.18
High education	4.02	2.92	58.32	18.18
$30 < \text{Age} \leq 50$	11.09	5.54	-22.70	16.60
$50 < \text{Age} \leq 65$	7.82	5.53	12.51	14.04
$\text{Age} > 65$	0.39	5.28	21.39	15.08

Sources: LISS panel and own calculations. All variables as described in Table 3 in the main text, except for the way of calculating moments of beliefs.

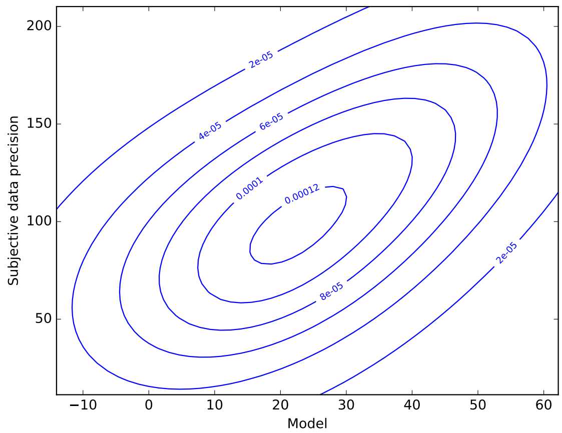
[1] We use the SciPy functions `scipy.interpolate.PchipInterpolator` to fit the splines and `scipy.integrate.quad` to calculate their moments.

Table B.24: Average partial effects, moments of beliefs calculated by approximating the distribution using splines

	Model	Subj. data prec.	Combined
Subjective beliefs (Splines): Expected excess return	0.042	·	0.042
Subjective beliefs (Splines): Expected standard deviation	-0.020	·	-0.020
Risk aversion	-0.037	·	-0.037
Absolute difference between belief measures	·	-0.014	-0.014
Confidence in AEX return estimate	·	0.014	0.014
Confidence in sav. acc. return estimate	·	0.007	0.007
Experimental tasks simple	·	0.019	0.019
Experimental tasks clear	·	0.003	0.003
Financial wealth $\in$ (10000 €, 30000 €]	0.107	0.003	0.099
Financial wealth $\in$ (30000 €, ∞)	0.264	0.091	0.369
Financial wealth missing	0.179	0.048	0.212
High education	0.021	0.074	0.096
Net income $>$ 2500 €	0.039	-0.026	0.013
Net income missing	-0.034	0.009	-0.026
$30 <$ Age ≤ 50	0.059	-0.024	0.029
$50 <$ Age ≤ 65	0.043	0.015	0.056
Age > 65	0.002	0.025	0.021

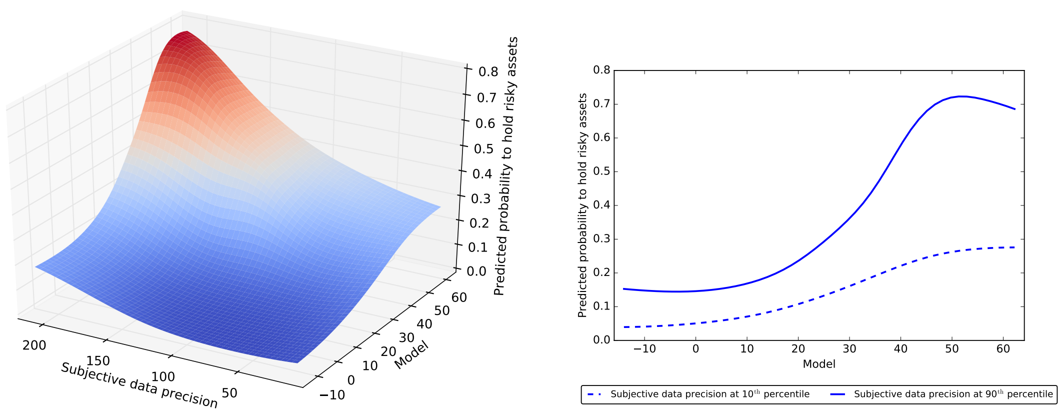
Sources: LISS panel and own calculations. All variables as described in Table 4 in the main text, except for the way of calculating moments of beliefs.

Figure B.23: Joint density of the two indices, moments of beliefs calculated by approximating the distribution using splines



Sources: LISS panel and own calculations. The figure plots the joint density of the estimated indices of the Klein and Vella (2009) model; see Section 2.3 for a detailed description.

Figure B.24: Predicted probability to hold risky assets, moments of beliefs calculated by approximating the distribution using splines



Sources: LISS panel and own calculations. The left panel presents the predicted probability of stock market participation for varying levels of the economic model and subjective data precision indices. The right panel plots the relation between the predicted probability of participation and the economic model index for the 10 and 90% quantiles of the subjective data precision index. Ranges are limited to the interval between the 5% and 95% quantiles of the marginal distributions.

B.13 Including interaction between risk aversion and the subjective standard deviation of returns

Expected the subjective standard deviation of returns may be more relevant for stock market participation decisions of respondents who are more risk averse. To assess this possibility, we add the interaction between $\sigma_{t+1}^{\text{AEX}}$ and the standardized measure of risk aversion to the economic model index.

Table B.25: Coefficient estimates for the economic model index and the subjective data precision index, including interaction between risk aversion and the subjective standard deviation of returns

	Model		Subjective data precision	
	Estimate	Std. Err.	Estimate	Std. Err.
Subjective beliefs: $\mu_{t+1}^{\text{AEX}} - \mu_{t+1}^{\text{sav. acc.}}$	1.00	·	·	·
Subjective beliefs: $\sigma_{t+1}^{\text{AEX}}$	-0.74	0.28	·	·
Risk aversion	-8.44	2.62	·	·
Interaction: $\sigma_{t+1}^{\text{AEX}} *$ Risk Aversion	0.10	0.32	·	·
Absolute difference between belief measures	·	·	-1.00	·
Confidence in AEX return estimate	·	·	59.66	27.71
Confidence in sav. acc. return estimate	·	·	27.91	22.05
Experimental tasks simple	·	·	54.12	19.71
Experimental tasks clear	·	·	15.22	18.49
Financial wealth $\in$ (10000 €, 30000 €]	20.55	5.93	18.61	21.44
Financial wealth $\in$ (30000 €, ∞)	42.92	9.10	90.32	36.99
Financial wealth missing	30.47	7.23	57.56	28.02
Net income $>$ 2500 €	7.38	2.67	-28.63	11.42
Net income missing	-6.88	4.23	5.31	12.76
High education	3.23	3.06	63.40	19.11
$30 < \text{Age} \leq 50$	11.83	5.54	-23.37	16.80
$50 < \text{Age} \leq 65$	6.95	5.43	17.24	15.04
$\text{Age} > 65$	-0.70	5.13	23.19	16.18

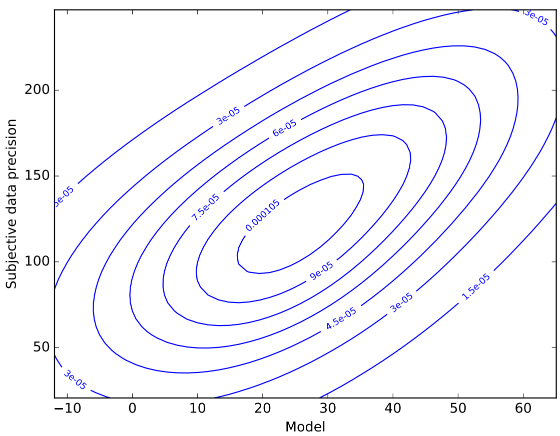
Sources: LISS panel and own calculations. All variables as described in Table 3 in the main text, adding the interaction between the standard deviation of subjective beliefs and the standardized measure of risk aversion.

Table B.26: Average partial effects, including interaction between risk aversion and the subjective standard deviation of returns

	Model	Subj. data prec.	Combined
Subjective beliefs: $\mu_{t+1}^{\text{AEX}} - \mu_{t+1}^{\text{sav. acc.}}$	0.034	·	0.034
Subjective beliefs: $\sigma_{t+1}^{\text{AEX}}$	-0.014	·	-0.014
Risk aversion	-0.041	·	-0.041
Interaction: $\sigma_{t+1}^{\text{AEX}} *$ Risk Aversion	0.004	·	0.004
Absolute difference between belief measures	·	-0.014	-0.014
Confidence in AEX return estimate	·	0.015	0.015
Confidence in sav. acc. return estimate	·	0.008	0.008
Experimental tasks simple	·	0.020	0.020
Experimental tasks clear	·	0.004	0.004
Financial wealth $\in$ (10000 €, 30000 €]	0.101	0.017	0.099
Financial wealth $\in$ (30000 €, ∞)	0.248	0.119	0.374
Financial wealth missing	0.173	0.069	0.222
Net income $>$ 2500 €	0.037	-0.029	0.009
Net income missing	-0.034	0.006	-0.029
High education	0.015	0.081	0.097
$30 < \text{Age} \leq 50$	0.055	-0.025	0.024
$50 < \text{Age} \leq 65$	0.034	0.021	0.053
$\text{Age} > 65$	-0.004	0.028	0.019

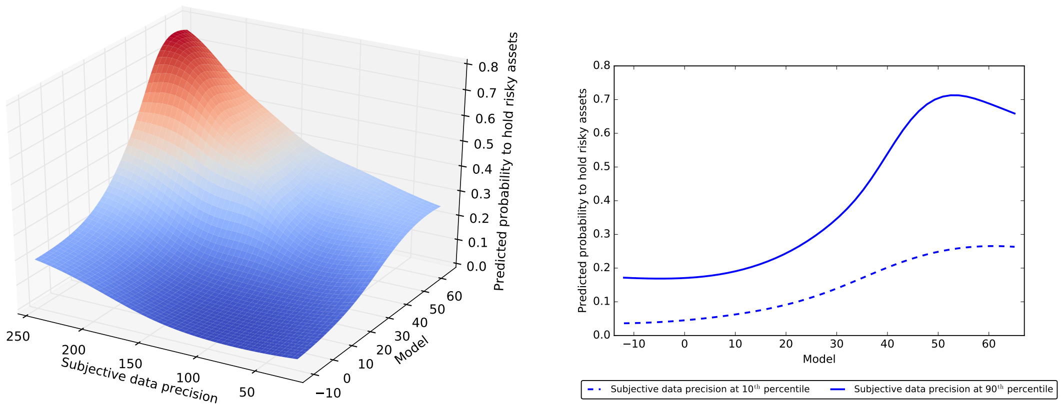
Sources: LISS panel and own calculations. All variables as described in Table 4 in the main text, adding the interaction between the standard deviation of subjective beliefs and the standardized measure of risk aversion.

Figure B.25: Joint density of the two indices, including interaction between risk aversion and the subjective standard deviation of returns



Sources: LISS panel and own calculations. The figure plots the joint density of the estimated indices of the Klein and Vella (2009) model; see Section 2.3 for a detailed description.

Figure B.26: Predicted probability to hold risky assets, including interaction between risk aversion and the subjective standard deviation of returns



Sources: LISS panel and own calculations. The left panel presents the predicted probability of stock market participation for varying levels of the economic model and subjective data precision indices. The right panel plots the relation between the predicted probability of participation and the economic model index for the 10 and 90% quantiles of the subjective data precision index. Ranges are limited to the interval between the 5% and 95% quantiles of the marginal distributions.

B.14 Dropping confidence, task obscurity, and task difficulty

Table B.27: Coefficient estimates for the economic model index and the subjective data precision index, dropping confidence, task obscuiry, and task difficulty

	Model		Subjective data precision	
	Estimate	Std. Err.	Estimate	Std. Err.
Subjective beliefs: $\mu_{t+1}^{\text{AEX}} - \mu_{t+1}^{\text{sav. acc.}}$	1.00	·	·	·
Subjective beliefs: $\sigma_{t+1}^{\text{AEX}}$	-0.64	0.36	·	·
Risk aversion	-7.45	2.00	·	·
Absolute difference between belief measures	·	·	-1.00	·
Financial wealth $\in$ (10000 €, 30000 €]	21.48	6.73	1.74	23.56
Financial wealth $\in$ (30000 €, ∞)	45.67	11.66	31.25	40.82
Financial wealth missing	34.70	9.06	-10.35	33.93
Net income > 2500 €	4.33	3.46	-19.32	9.76
Net income missing	-7.23	5.11	18.14	10.67
High education	10.53	6.01	34.48	17.14
$30 < \text{Age} \leq 50$	8.13	7.29	-34.05	14.94
$50 < \text{Age} \leq 65$	10.03	5.35	-5.36	10.75
Age > 65	0.92	4.87	15.75	14.43

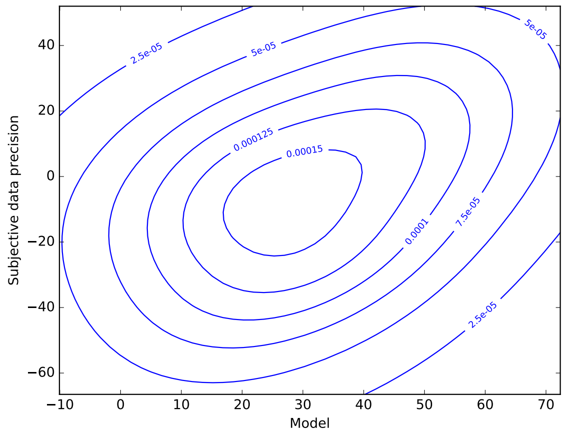
Sources: LISS panel and own calculations. All variables as described in Table 3 in the main text.

Table B.28: Average partial effects, dropping confidence, task obscuiry, and task difficulty

	Model	Subj. data prec.	Combined
Subjective beliefs: $\mu_{t+1}^{\text{AEX}} - \mu_{t+1}^{\text{sav. acc.}}$	0.047	·	0.047
Subjective beliefs: $\sigma_{t+1}^{\text{AEX}}$	-0.015	·	-0.015
Risk aversion	-0.044	·	-0.044
Absolute difference between belief measures	·	-0.008	-0.008
Financial wealth $\in$ (10000 €, 30000 €]	0.116	0.002	0.110
Financial wealth $\in$ (30000 €, ∞)	0.321	0.035	0.376
Financial wealth missing	0.231	-0.009	0.206
Net income > 2500 €	0.027	-0.010	0.016
Net income missing	-0.044	0.009	-0.038
High education	0.066	0.030	0.097
$30 < \text{Age} \leq 50$	0.051	-0.023	0.028
$50 < \text{Age} \leq 65$	0.062	-0.005	0.060
Age > 65	0.006	0.012	0.015

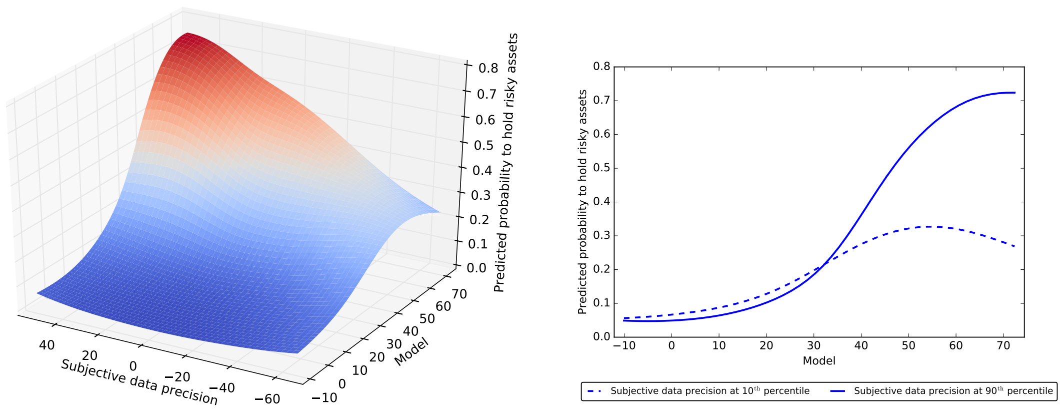
Sources: LISS panel and own calculations. All variables as described in Table 4 in the main text.

Figure B.27: Joint density of the two indices, dropping confidence, task obscuiry, and task difficulty



Sources: LISS panel and own calculations. The figure plots the joint density of the estimated indices of the Klein and Vella (2009) model; see Section 2.3 for a detailed description.

Figure B.28: Predicted probability to hold risky assets, dropping confidence, task obscuiry, and task difficulty



Sources: LISS panel and own calculations. The left panel presents the predicted probability of stock market participation for varying levels of the economic model and subjective data precision indices. The right panel plots the relation between the predicted probability of participation and the economic model index for the 10 and 90% quantiles of the subjective data precision index. Ranges are limited to the interval between the 5% and 95% quantiles of the marginal distributions.

B.15 Including financial numeracy questions in both indices

In October 2014, we asked respondents three questions to determine their familiarity with basic financial concepts:

> **Question 1 - Simplest numeracy:** Suppose you have 100 euros on a savings account with an annual interest rate of 2 per cent. How much will you have on the savings account after five years, assuming you leave the money in this account?
>
> - More than 102 Euros
> - Less than 102 Euros
> - Exactly 102 Euros
> - Do not know
>
> **Question 2 - Interest compounding:** Suppose you have 100 euros on a savings account with an annual interest rate of 20 per cent and you never withdraw any money or interest. How much will you have after five years in total?
>
> - More than 200 Euros
> - Less than 200 Euros
> - Exactly 200 Euros
> - Do not know
>
> **Question 3 - Inflation:** Suppose the interest rate on your savings account is 1 per cent per year and inflation is 2 per cent per year. After one year, how much will you be able to buy with the money in the account?
>
> - Less than today
> - More than today
> - Exactly the same as today
> - Do not know

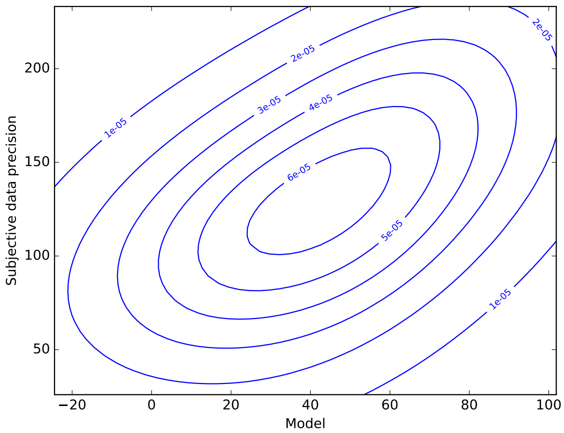
For each question, we create a binary variable and set it to 1 in case the subject provided the correct response, and to 0 otherwise. We include all variables as additional covariates in both indices.

Table B.29: Coefficient estimates for the economic model index and the subjective data precision index, including financial numeracy questions as additional covariates

	Model		Subjective data precision	
	Estimate	Std. Err.	Estimate	Std. Err.
Subjective beliefs: $\mu_{t+1}^{\text{AEX}} - \mu_{t+1}^{\text{sav. acc.}}$	1.00	·	·	·
Subjective beliefs: $\sigma_{t+1}^{\text{AEX}}$	-0.41	0.57	·	·
Risk aversion	-12.37	3.52	·	·
Absolute difference between belief measures	·	·	-1.00	·
Confidence in AEX return estimate	·	·	43.49	26.89
Confidence in sav. acc. return estimate	·	·	26.02	26.75
Experimental tasks simple	·	·	36.74	20.96
Experimental tasks clear	·	·	28.67	19.79
Financial numeracy: Simplest numeracy question false	7.02	7.31	-12.78	18.13
Financial numeracy: Interest compounding question false	-13.79	6.32	7.36	13.13
Financial numeracy: Inflation question false	-20.63	8.67	-3.25	15.16
Financial wealth $\in$ (10000 €, 30000 €]	35.60	11.67	26.40	28.74
Financial wealth $\in$ (30000 €, ∞)	66.08	18.78	84.03	51.26
Financial wealth missing	54.36	16.42	55.98	42.34
Net income $>$ 2500 €	13.48	5.56	-31.36	14.25
Net income missing	-16.63	7.88	11.12	13.47
High education	-1.07	6.91	59.48	23.15
$30 < \text{Age} \leq 50$	23.32	10.56	-18.48	19.55
$50 < \text{Age} \leq 65$	11.00	9.90	21.60	17.56
$\text{Age} > 65$	-2.99	8.70	38.50	20.58

Sources: LISS panel and own calculations. All variables as described in Table 3 in the main text. We add binary variables describing whether subjects correctly answered 3 distinct questions related to basic financial numeracy.

Figure B.29: Joint density of the two indices, including financial numeracy questions as additional covariates



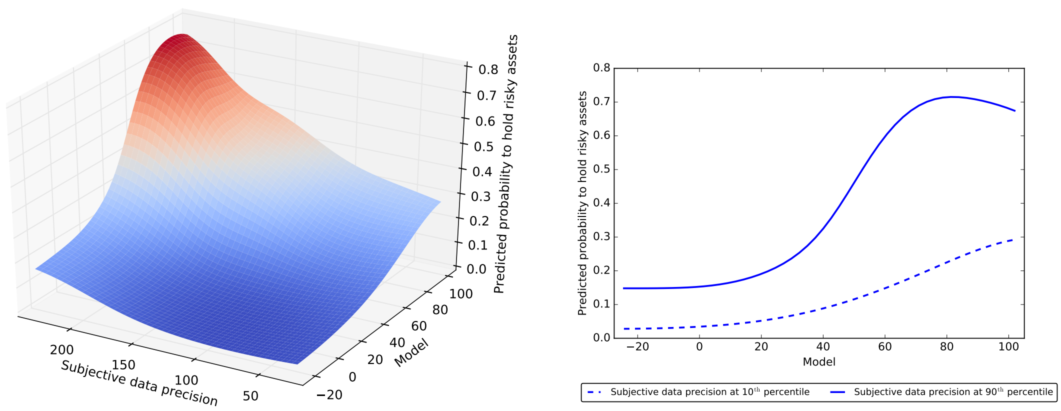
Sources: LISS panel and own calculations. The figure plots the joint density of the estimated indices of the Klein and Vella (2009) model; see Section 2.3 for a detailed description.

Table B.30: Average partial effects, including financial numeracy questions as additional covariates

	Model	Subj. data prec.	Combined
Subjective beliefs: $\mu_{t+1}^{\text{AEX}} - \mu_{t+1}^{\text{sav. acc.}}$	0.024	·	0.024
Subjective beliefs: $\sigma_{t+1}^{\text{AEX}}$	-0.005	·	-0.005
Risk aversion	-0.038	·	-0.038
Absolute difference between belief measures	·	-0.017	-0.017
Confidence in AEX return estimate	·	0.014	0.014
Confidence in sav. acc. return estimate	·	0.009	0.009
Experimental tasks simple	·	0.017	0.017
Experimental tasks clear	·	0.010	0.010
Financial numeracy: Simplest numeracy question false	0.020	-0.017	0.002
Financial numeracy: Interest compounding question false	-0.045	0.010	-0.036
Financial numeracy: Inflation question false	-0.068	-0.004	-0.072
Financial wealth $\in$ (10000 €, 30000 €]	0.112	0.029	0.109
Financial wealth $\in$ (30000 €, ∞)	0.244	0.131	0.371
Financial wealth missing	0.197	0.077	0.250
Net income $>$ 2500 €	0.043	-0.039	0.003
Net income missing	-0.052	0.015	-0.039
High education	-0.003	0.096	0.092
$30 < \text{Age} \leq 50$	0.068	-0.023	0.040
$50 < \text{Age} \leq 65$	0.034	0.031	0.064
$\text{Age} > 65$	-0.010	0.057	0.041

Sources: LISS panel and own calculations. All variables as described in Table 4 in the main text. We add binary variables describing whether subjects correctly answered 3 distinct questions related to financial numeracy.

Figure B.30: Predicted probability to hold risky assets, including financial numeracy questions as additional covariates



Sources: LISS panel and own calculations. The left panel presents the predicted probability of stock market participation for varying levels of the economic model and subjective data precision indices. The right panel plots the relation between the predicted probability of participation and the economic model index for the 10 and 90% quantiles of the subjective data precision index. Ranges are limited to the interval between the 5% and 95% quantiles of the marginal distributions.

C Specification with less customized data

This section reports the results for the specification with less customized data described in Section 4.3 of the main text. As discussed in there, we restrict the specification to (i) the point estimate of AEX returns, (ii) one qualitative question to elicit risk attitudes, (iii) two simple qualitative proxies for the precision of subjective data, and (iv) sociodemographics.

Table C.1: Coefficient estimates for the economic model index and the subjective data precision index, specification with less customized data

	Model		Subjective data precision	
	Estimate	Std. Err.	Estimate	Std. Err.
Subjective beliefs (direct question): Log expected excess return	1.00	·	·	·
Aversion to risks in general	-15.04	4.09	·	·
Experimental tasks simple	·	·	1.00	·
Experimental tasks clear	·	·	0.36	0.32
Financial wealth ∈ (10000 €, 30000 €]	37.53	16.85	0.48	0.47
Financial wealth ∈ (30000 €, ∞)	26.75	30.85	2.32	0.68
Financial wealth missing	45.52	22.10	1.09	0.54
Net income > 2500 €	13.58	11.08	-0.08	0.23
Net income missing	-49.75	18.44	0.51	0.35
High education	-0.76	15.90	0.96	0.31
30 < Age ≤ 50	54.95	19.01	-0.87	0.44
50 < Age ≤ 65	26.65	15.17	0.12	0.31
Age > 65	-17.97	15.31	0.54	0.32

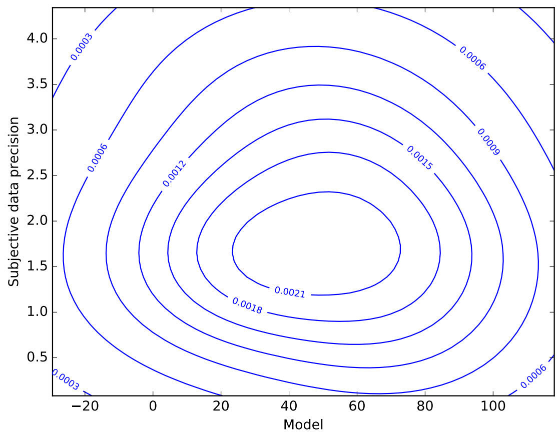
Sources: LISS panel and own calculations. All variables as described in Table 3 in the main text. The model only includes the point estimate as measure of beliefs, a qualitative question to elicit risk attitudes, and two qualitative proxies for the precision of subjective data.

Table C.2: Average partial effects, specification with less customized data

	Model	Subj. data prec.	Combined
Subjective beliefs (direct question): Log expected excess return	0.031	·	0.031
Aversion to risks in general	-0.029	·	-0.029
Experimental tasks simple	·	0.036	0.036
Experimental tasks clear	·	0.010	0.010
Financial wealth ∈ (10000 €, 30000 €]	0.077	0.036	0.101
Financial wealth ∈ (30000 €, ∞)	0.056	0.346	0.396
Financial wealth missing	0.091	0.114	0.202
Net income > 2500 €	0.026	-0.008	0.018
Net income missing	-0.096	0.055	-0.050
High education	-0.001	0.116	0.115
30 < Age ≤ 50	0.095	-0.085	0.013
50 < Age ≤ 65	0.053	0.014	0.070
Age > 65	-0.035	0.063	0.024

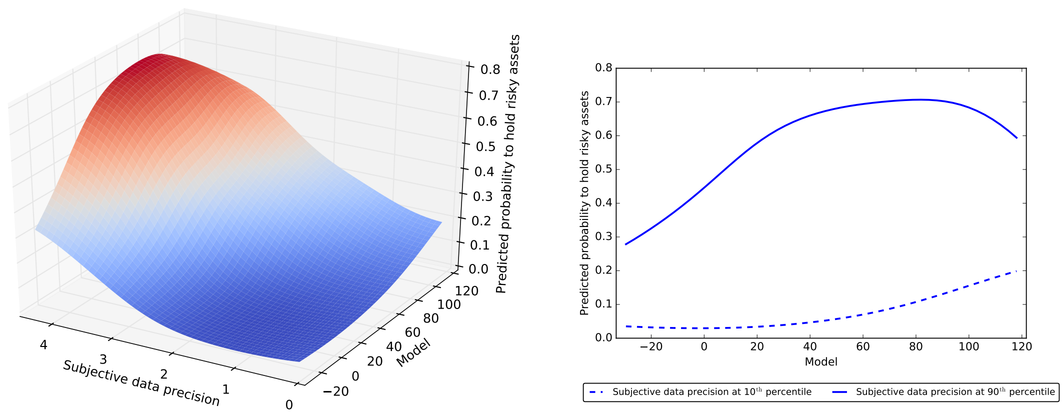
Sources: LISS panel and own calculations. All variables as described in Table 4 in the main text. The model only includes the point estimate as measure of beliefs, a qualitative question to elicit risk attitudes, and two qualitative proxies for the precision of subjective data.

Figure C.1: Joint density of the two indices, specification with less customized data



Sources: LISS panel and own calculations. The figure plots the joint density of the estimated indices of the Klein and Vella (2009) model; see Section 2.3 for a detailed description.

Figure C.2: Predicted probability to hold risky assets, specification with less customized data

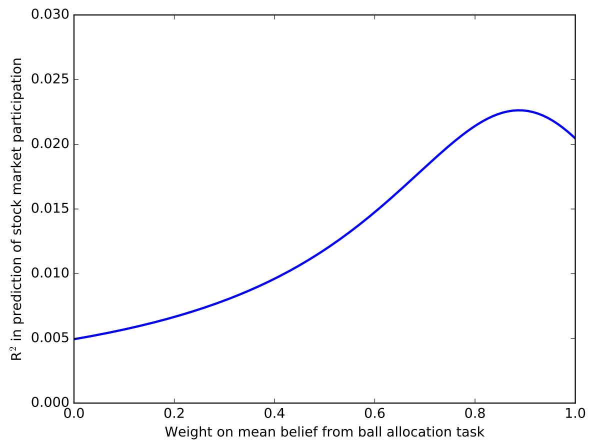


Sources: LISS panel and own calculations. The left panel presents the predicted probability of stock market participation for varying levels of the economic model and subjective data precision indices. The right panel plots the relation between the predicted probability of participation and the economic model index for the 10 and 90% quantiles of the subjective data precision index. Ranges are limited to the interval between the 5% and 95% quantiles of the marginal distributions.

D Can we correct for measurement error using multiple measures?

This section provides some tentative evidence that attempting to correct for measurement error in subjective beliefs through multiple measures is of little help. To this end, Figure D.1 presents the R^2 of an OLS regression of a stock market participation dummy on various linear combinations of two belief measures: (i) the mean belief constructed from the ball allocation task and (ii) the point estimate. The figure shows that – contrary to what one would expect if repeated measurements reduce measurement error – the variance explained is maximized by putting almost maximal weight on the belief from the ball allocation task. This suggests that traditional methods of correcting for measurement error do not apply in the case of subjective beliefs.

Figure D.1: Variance explained in stockholdings by different linear combinations of two belief measures



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