

Data Appendix

A1. The 2007 survey

The survey data used draw on a sample of Italian clients of a large Italian bank. The survey was conducted between June and September 2007 and elicited detailed financial and demographic information on a sample of 1,686 individuals with a checking account in one of the branches of the bank. The eligible population of customers excludes customers under 20 and over 80, and customers with assets of less than €10,000 with the bank. The sampled population size is around 1.3 million customers. The survey was aimed at acquiring information on the behavior and expectations of the bank's customers and focused on multi-banking, attitude towards saving and investing, financial literacy and propensity for risk, pensions and need for insurance. The sample is stratified according to three criteria: geographical area, city size, financial wealth, and it explicitly over-samples rich clients.

An important feature of the survey is that only individual retail investors at this particular bank were sampled. The survey, however, also contains detailed information on the spouse, if present. Financial variables are elicited for both respondents and households. In the paper, demographic variables refer to the household head (even if different from the respondent), and economic variables (real and financial assets) to the household, not to the individual investor. The survey contains detailed information on ownership of real and financial assets, and amounts invested. For real assets, the bank reports separate data on primary residence, investment real estate, land, business wealth, and debt (distinguished between mortgage and other debt). Real asset amounts are elicited without use of bracketing.

The sampling scheme is similar to that of the Bank of Italy Survey of Household Income and Wealth (SHIW). The population is stratified along two criteria: geographical area of residence (North-East, North-West, Central and Southern Italy) and wealth held with the bank as of June 30 2006. The sample size is 1,686 customers, of whom 1,580 are from the retail bank belonging to the group, and 106 from the private bank (which targets upper tier customers). The survey was administered between May 1 and September 30 of 2007 by a leading Italian polling agency, which also conducts the SHIW for the Bank of Italy. Most interviewers had substantial experience of administering the SHIW, which is likely to increase the quality of the data. Computer Assisted Personal Interview methodology was employed for all interviews. To overcome some of the problems arising from non-responses, the sample was balanced ex-post with respect to the true distribution of assets, area of residence, city size, gender, age and education of the eligible population.

The questionnaire comprises 9 sections. Sections A and B refer respectively to respondents' and households' demographic and occupation variables. Section C focuses on saving, investment and financial risk. Section D asks detailed questions about financial wealth and portfolio allocation, and Section E enquires about consumer debt and mortgages. By design, Sections A, B, D and E allow a perfect matching with the SHIW questionnaire. Questions on real estate and entrepreneurial activities are included in Section F. Section G contains questions on subjective expectations, and section H focuses on insurance and private pension funds. The last two sections ask about income and expectations and need for insurance and pension products.

As shown in Table A.1, compared with the Italian population, as surveyed by the 2006 Bank of Italy SHIW, bank customers are older, more educated, less likely to work in the manufacturing sector, and more likely to live in the North.

Table A.1: Bank survey – SHIW comparison

| | <i>Bank survey</i> | <i>SHIW</i> <i>Highest income earner</i> | <i>SHIW</i> <i>Bank account holder</i> |
|---------------------------|--------------------|---|---|
| Gender | | | |
| Male | 0.69 | 0.69 | 0.71 |
| Female | 0.31 | 0.31 | 0.29 |
| Age | | | |
| Up to 30 | 0.04 | 0.06 | 0.06 |
| 31 to 40 | 0.18 | 0.19 | 0.20 |
| 41 to 50 | 0.22 | 0.22 | 0.22 |
| 51 to 65 | 0.36 | 0.24 | 0.24 |
| Over 65 | 0.20 | 0.29 | 0.27 |
| Education | | | |
| Elementary School | 0.10 | 0.27 | 0.22 |
| Middle School | 0.29 | 0.36 | 0.37 |
| High School | 0.41 | 0.27 | 0.30 |
| University Degree | 0.20 | 0.10 | 0.10 |
| Sector of activity | | | |
| Agriculture | 0.03 | 0.03 | 0.03 |
| Industry | 0.13 | 0.21 | 0.23 |
| Public Administration | 0.19 | 0.15 | 0.17 |
| Other sectors | 0.30 | 0.19 | 0.20 |
| Not employed | 0.35 | 0.40 | 0.37 |
| Household Size | | | |
| 1 member | 0.21 | 0.25 | 0.23 |
| 2 members | 0.29 | 0.28 | 0.29 |
| 3 members | 0.26 | 0.21 | 0.22 |
| 4 members | 0.20 | 0.18 | 0.19 |
| 5 or more members | 0.04 | 0.07 | 0.06 |
| Geographical Area | | | |
| Northern Italy | 0.73 | 0.48 | 0.52 |
| Central Italy | 0.14 | 0.20 | 0.21 |
| South and Islands | 0.13 | 0.32 | 0.27 |

Note: The table compares sample means of selected demographic variables in the bank survey and 2006 SHIW. Means are computed using sample weights.

A2. The administrative bank survey data

We complement the 2007 survey with administrative data on assets' stocks and net flows that we use to compute measures of wealth and changes and portfolio allocation before and after the crisis.

The bank administrative dataset contains information on the stocks and on the net flows of 26 assets categories that investors have at the bank¹. These data are available at monthly frequency for 35 months beginning in December 2006. The administrative data reports this information for the investors that actually participated in the 2007 survey and can indeed be matched with the 2007 bank survey data. Notice that the administrative data form a balanced panel. We use these data to obtain measures of people financial wealth and portfolio compositions at various points in time before and after the financial crisis.

A3. The 2009 telephone survey

In June 2009, the same company that fielded the 2007 bank survey re-contacted the respondents to the 2007 survey asking for their willingness to participate in a short telephone interview. Out of 1,686 contacts, 666 completed the telephone interview.

The questionnaire was designed to ask a set of selected questions that were asked in 2007 using exactly the same wording. In particular we asked a qualitative risk aversion question, a hypothetical risky lottery question, a generalized trust and trust in own bank question and a question eliciting the probability distribution of stock market returns. In addition, a few other questions were posed that were not asked in the 2007 survey. At the beginning of the interview the interviewer asked a number of demographic characteristics in order to make sure that the respondent was the same who participated in the 2007 interview.

A4 Variables Definition

Risk Aversion measures:

The qualitative measure of risk aversion elicits the investment objective of the respondent, offering them the choice among "Very high returns, even at the risk of a high probability of losing part of the principal;" "A good return, but with an ok degree of safety of the principal;" "A ok return, with good degree of safety of the principal," "Low returns, but no chance of losing the principal." The responses are coded with integers from 1 to 4, with a higher score meaning a higher risk aversion. The quantitative measure of risk aversion is calculated by eliciting the certainty equivalent for a gamble that delivers either 10,000 euro or zero with equal probability; the risk premium is then obtained as the difference between the expected value of the gamble (5,000 Euro) and each respondent's certainty equivalent.

Change in cautiousness is obtained from answers to the following question asked in the 2009 survey: "After the stock market crash did you become more cautious and prudent in your investment decisions?" The possible answers are: "More or less like before", "A bit more cautious", "Much more cautious." The variable change in cautiousness is zero if the response is "no change", 1 if the response is "a bit more", and 2 if it is "much more".

¹ The list includes: checking accounts, time deposits, deposit certificates, stock mutual funds, money market mutual funds, bond mutual funds, other mutual funds, ETF, linked funds, Italian stocks, foreign stocks, unit linked insurance, recurrent premium, unit linked insurance, one shot premium, stock market index, life insurance recurrent premium, life insurance one shot premium, pension funds, T-bills short term, T-bonds, indexed T-bonds, other T-bills, managed accounts, own bank bonds, corporate bonds Italy, corporate bonds foreign, other bonds.

Demographic variables:

Age is a self-reported measure of the age of the respondent in years. *Male* is a dummy variable equal to one if the respondent is male and 0 if the respondent is female. *Married* is a dummy variable equal to one if the respondent is married. *North* is a dummy variable equal to one if the respondent is a resident in North of Italy, while *Center* is a dummy variable equal to one if the respondent is a resident of the Center regions in Italy. *Education* is a self-reported measure of years of education. *Retired* is a dummy variable equal to one if the respondent is retired from his job and receives a pension. In Italy, pensions are defined benefit plans, roughly equal to 65-70% of the last salary. *Government employee* is a self-reported measure if the respondent is a government employee. *Trust Advisors* is a coded answer to the question: "Overall, how much trust do you have in your bank advisor or financial broker concerning your financial investments?" with the answers ranging from 1 ("I trust a lot") to 5 ("No trust at all"). We have recoded them so that the variable is increasing in trust. In the experiment: *Caucasian* is a dummy if participant's is non-Hispanic white; *Income*, is participant's family income, in thousands of dollars.

Assets and financial variables:

Financial Asset is the value of financial assets in Euro that the respondent holds at the bank as of the end of first quarter of 2007 and the end of the second quarter of 2009 collected from the bank administrative data. *Stock Net Wealth* is the sum of *Financial Assets* (divided by the proportion of financial wealth held at the bank to obtain an estimate of total household financial assets) plus the value of home equity, net of financial debt. Home equity at various dates is computed starting with the self-reported value in the survey as of the end of 2007. Home equity in subsequent quarters is imputed using variation in local quarterly indexes of real estate prices. The stock of net wealth in 2008 is as of the end of the second quarter, prior to collapse of Lehman Brothers; the stock in 2009 refers to the end of the second quarter, when the 2009 telephone survey was fielded. The losses on the financial portfolio are computed by multiplying the holdings of risky securities (stocks, stocks mutual fund, corporate bonds and corporate bonds funds) before August 2008 by the proportional change in their price between September 2008 (before Lehman collapse) and February 2009 (when the stock market rebounds) and then scaling by the stock of financial assets before August 2008.

Stockownership (Jan 2007 and June 2009) is a dummy variable equal to one if the respondent holds stocks directly or indirectly (e.g. in stock mutual funds) at the bank respectively in January 2007 and in June 2009. This is computed from the bank's administrative data. *Share in stocks* (Jan 2007 and June 2009) is the value of the financial wealth in Euro invested in stocks (directly or indirectly) divided by total financial assets at the bank. This variable is computed from administrative bank data respectively in January 2007 and June 2009. *Risky asset ownership*: 2007 (2009) is a dummy variable equal to one if the respondent has risky assets defined as including stocks (directly and indirectly held), corporate bonds, ETF, managed stock funds and stock linked funds, adjustable rate and long-term government bonds This variable is computed from the bank administrative data at various data and in particular in January 2007 and June 2009. *Share in Risky Assets* Jan 2007 (June 2009) is the fraction of financial wealth held in risky assets (defined as above) computed from the bank administrative data as of January 2007 (June 2009). *Knightian uncertainty*: a dummy equal to 1 if in 2007 the investor is able to answer the question about the probability distribution of stock prices but is unable to in 2009; zero otherwise. *Change in Log Net Wealth 2009-2007* is computed between the second quarter of 2009 and the first quarter of 2007, while *Change in log Net Wealth 2008-2009* is computed between the second quarter of 2009 and the second quarter of 2008.

Change in Ownership of Risky Assets is defined as the first difference of *Risky asset ownership*.

Change in Share Risky Assets is the first difference of *Share in Risky Assets*

Change in Advisor's Trust is computed as first difference of *Trust Advisors*

Change in Expected Stock Returns: investors were asked to report the distribution of stock returns one year ahead. Specifically they were asked to state what they think would be the value of a 10,000 euro investment in a fully diversified stock mutual after 12 months. They were asked to report the minimum value first, then the maximum. Subsequently they were asked to report the probability that the value of the stock by the end of the 12 months is above the mid-point of the reported support. Under some assumptions about the shape of the distribution, this parsimonious information allows us to compute the subjective mean and variance of stock market returns. Stock market expectation is the first moment of the distribution. We have computed these moments assuming the distribution is uniform but results are similar if we assume that the distribution is triangular. The change in stock market expectation is the difference in response by the same individual when the question is asked in each survey.

Change in Range stock market returns: is the difference between the maximum and minimum value of the investment reported in the answers to question on *Expected Stock Returns*. The change in the range is the difference between the two surveys.

Mean risky asset share 2007: ω_i^M : is the average monthly value of *Share in Risky Assets* taken over 12 months of 2007. .

Risk aversion ratio: $\left[\frac{\gamma_i}{\gamma_i} - 1\right] \omega_i^M$: the ratio between the pre-crisis and post crisis risk aversion is computed dividing the value of the qualitative indicator in 2007 and by the one measured in June 2009

Post shock share: $\left[\frac{p\omega_i^M}{p\omega_i^M + 1 - \omega_i^M}\right]$: to compute the post-shock share we construct an investor specific measure of p by taking portfolio-weighted means of the drop in the different components of the risky portfolio using as weights the risky portfolio compositions of each individual as of August 2008. We group assets in the risky portfolio into stocks, corporate bonds, mutual funds and bank bonds. The change in the price of the risky portfolio is computed by taking the weighted mean of the percentage change in the price of its components. For stock prices we use the StoXX Europe TMI index, for corporate bonds the FTSE Euro Corporate bonds index and for bank bonds Unicredit bonds index. Mutual funds price is computed taking into account the stock and bond weights and then using the stock and bond index. Of course this measure is only defined for individuals that hold risky assets before the shocks. For those holding no risky assets we set it at zero.

A5. Additional analysis

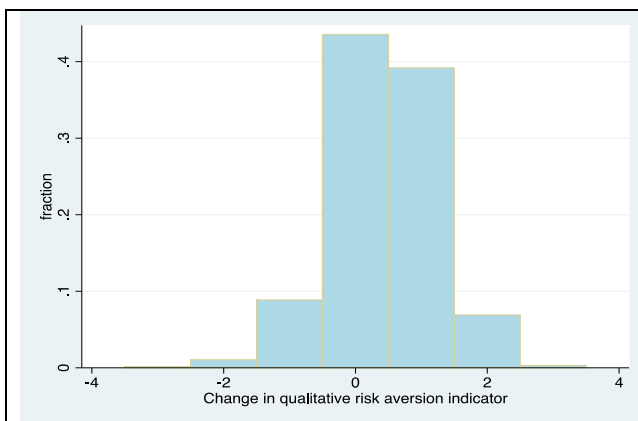
This section complements some of the figures and Tables in text and provides additional statistics and analysis.

Figure A.1. Frequency distribution of the change in risk aversion indicators 2009 and 2007

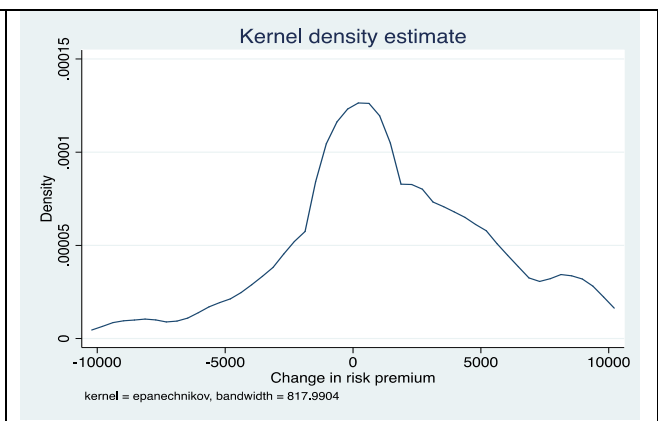
The figure shows the distribution of the first difference of the risk aversion indicators between 2009 and 2007. Panel A used the whole sample; Panel B and C reports the distribution of the change accounting for censoring (Panel B) and dropping inconsistent answers across the two questions (Panel C)

A. Whole sample

Qualitative indicator

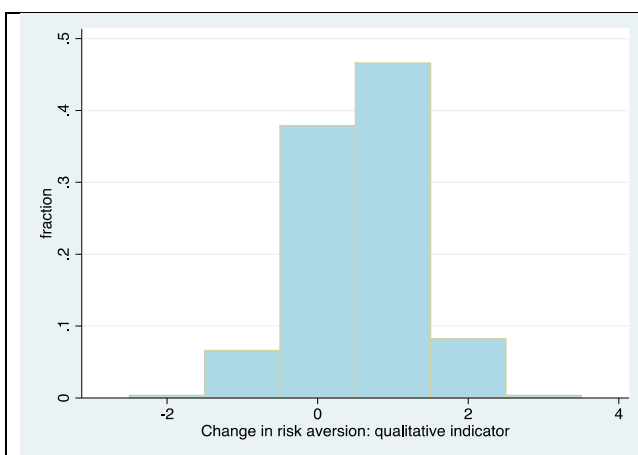


Quantitative indicator

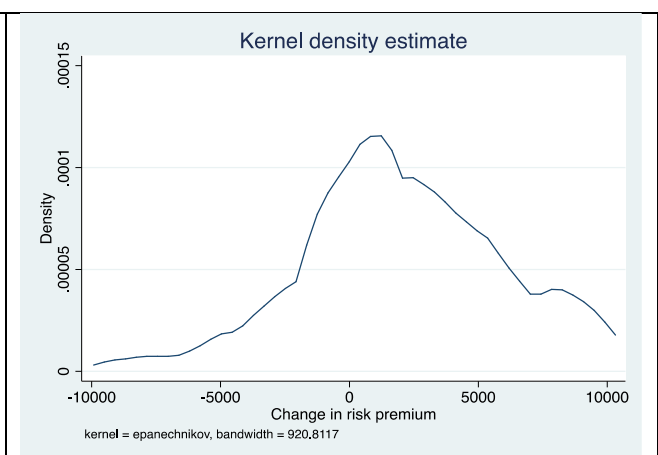


B. Accounting for censoring

Qualitative indicator



Quantitative indicator



C. Eliminating inconsistent answers and accounting for censoring

Qualitative indicator

Quantitative indicator

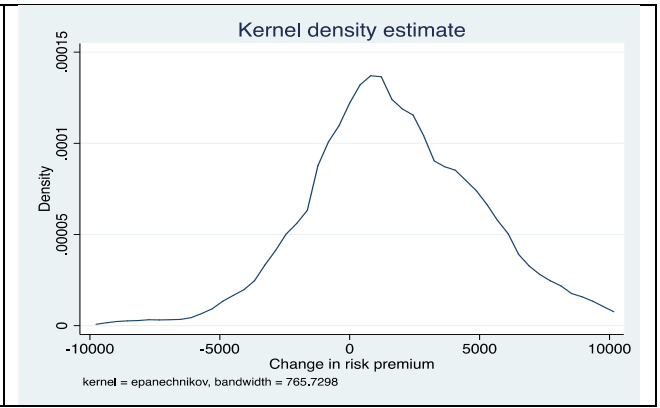
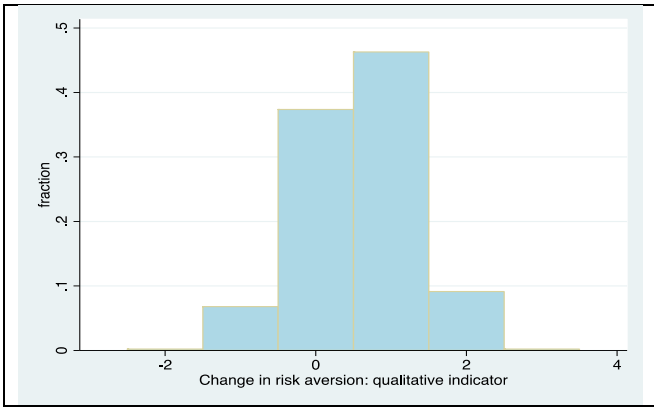


Table A.2: Risk aversion and share of risky assets

This table presents robustness regressions corresponding to Table IV.B and IV.C in the paper. Panel A, reports tobit regressions for the level of the share of risky assets in the financial portfolio. Panel B, reports OLS regressions for the change in this share. The measures of risk aversion are defined as in Table II. The quantitative measure is the risk premium scaled by the expected value of the lottery. The last column reports the results dropping those who reported inconsistent answer to the risk aversion question (highly risk averse according to the first measure - a value greater than 2 – but risk lover on the basis of the quantitative question – a certainty equivalent greater or equal to 9000 euro). All the other variables are defined in the Data Appendix, Section A4. Robust standard errors are in brackets. */**/* indicates statistical significance at the 10%, 5%, and 1% level.

A. Risky share level

| | Whole sample | | Eliminate inconsistent answers |
|---|----------------------|---------------------|-----------------------------------|
| | (1) | (2) | (3) |
| Qualitative measure of risk aversion: 2007 | -0.141*** (0.021) | | |
| Quantitative measure of risk aversion: 2007 | | -0.009 (0.022) | -0.061*** (0.018) |
| Male | 0.084*** (0.018) | 0.115*** (0.026) | 0.111*** (0.028) |
| Age | 0.018** (0.009) | 0.022** (0.009) | 0.024** (0.010) |
| Age ² /100 | -0.015** (0.008) | -0.000** (0.000) | -0.000** (0.000) |
| Education | 0.012*** (0.004) | 0.015*** (0.002) | 0.013*** (0.002) |
| Trust Advisors 2007 | 0.023** (0.011) | 0.032*** (0.008) | 0.033*** (0.009) |
| Log Net Wealth: 2007 | 0.107*** (0.008) | 0.121*** (0.029) | 0.109*** (0.025) |
| Observations | 1,494 | 1,494 | 1,311 |

B. Change in risky share

| | Whole sample | | Eliminate inconsistent answers |
|---------------------------------------|----------------------|----------------------|-----------------------------------|
| | (1) | (2) | (3) |
| Δ Risk Aversion: Qualitative Measure | -0.009 (0.013) | | |
| Δ Risk Aversion: Quantitative Measure | | -0.154* (0.089) | -0.243** (0.099) |
| Male | -0.019 (0.023) | 0.380** (0.171) | 0.310 (0.189) |
| Age | -0.000 (0.009) | 0.070 (0.062) | 0.070 (0.070) |
| Age2/100 | -0.000 (0.008) | -0.001 (0.001) | -0.001 (0.001) |
| Education | -0.002 (0.002) | 0.009 (0.020) | 0.012 (0.020) |
| Δ in Advisors Trust | -0.007 (0.009) | -0.081 (0.072) | -0.089 (0.083) |
| Δ Log Net Wealth 2009-2007 | 0.133* (0.069) | 1.353*** (0.366) | 1.213*** (0.462) |
| Risky Asset Share 2007 | -0.167*** (0.023) | -0.163*** (0.023) | -0.151*** (0.023) |
| Observations | 569 | 569 | 500 |
| R-squared | 0.090 | 0.097 | 0.094 |

Table A.3: Transition matrix of the qualitative measure of risk aversion 2007-2009

This table reports the transition matrix of the qualitative measure of risk aversion, between 2007 and 2009. The indicator is defined in Table II.

Risk aversion: Qualitative Indicator 2009

| Risk aversion: Qualitative Indicator 2007 | High Risk/High Return | Moderate Risk/Medium Return | Small Risk/Some Return | No Risk/Low Return | Total |
|--|-----------------------|-----------------------------|------------------------|--------------------|-------|
| High Risk/High Return | 2 | 6 | 2 | 2 | 12 |
| Moderate Risk/Medium Return | 4 | 38 | 95 | 44 | 181 |
| Small Risk/Some Return | 2 | 33 | 172 | 160 | 367 |
| No Risk/Low Return | 1 | 5 | 22 | 78 | 106 |
| Total | 9 | 82 | 291 | 284 | 666 |

Table A.4: Transition matrix of the quantitative measure of risk aversion 2007-2009

Panel A maps absolute risk aversion (ARA) intervals and risk premium intervals; the ARA interval is the interval of the degree of absolute risk aversion (x1,000) implicit in the answers to the lottery questions. The risk premium is computed as the difference between the expected value of the lottery (5,000€) and each respondent’s declared certainty equivalent in the survey. Panel B reports the transition matrix of the quantitative measure of risk aversion, between the 2007 and 2009. The measure is illustrated in Table II. Values for 2007 are reported in rows, while those for 2009 are displayed in columns. For the open interval of the lowest (respectively, highest) risk aversion category the lower (respectively higher) bound is not observed and is denoted with a “.”

A. ARA Interval and risk premium mapped into risk aversion categories

| | Risk aversion category | | | | | | | | | |
|------------------------|------------------------|--------|--------|-------|-------|-------|-------|-------|-------|-------|
| Risk premium interval: | | | | | | | | | | |
| <i>Lower bound</i> | . | -4000 | -2000 | -500 | 0 | 1000 | 2000 | 3500 | 4500 | 4900 |
| <i>Upper bound</i> | -4000 | -2000 | -500 | 0 | 1000 | 2000 | 3500 | 4500 | 4900 | . |
| ARA interval: | | | | | | | | | | |
| <i>Lower bound</i> | . | -0.692 | -0.180 | -0.04 | 0.00 | 0.082 | 0.18 | 0.446 | 1.386 | 6.932 |
| <i>Upper bound</i> | -0.692 | -0.180 | -0.04 | 0.00 | 0.082 | 0.18 | 0.446 | 1.386 | 6.932 | . |

B. Transition matrix of the quantitative measure of risk aversion between the 2007 and 2009

| | Risk premium 2009 | | | | | | | | | | |
|--------------------------|-------------------|-------|-------|------|----|------|------|------|------|------|------------|
| Risk premium 2007 | <-4000 | -4000 | -2000 | -500 | 0 | 1000 | 2000 | 3500 | 4500 | 4900 | Total obs. |
| <-4000 | 5 | 2 | 3 | 0 | 8 | 4 | 8 | 11 | 3 | 22 | 66 |
| -4000 | 6 | 3 | 5 | 3 | 14 | 4 | 10 | 7 | 4 | 14 | 70 |
| -2000 | 4 | 2 | 2 | 1 | 11 | 1 | 5 | 10 | 4 | 13 | 53 |
| -500 | 1 | 0 | 0 | 1 | 1 | 1 | 4 | 2 | 1 | 2 | 13 |
| 0 | 5 | 3 | 3 | 2 | 18 | 3 | 21 | 8 | 3 | 29 | 95 |
| 1000 | 4 | 2 | 0 | 0 | 4 | 2 | 9 | 8 | 3 | 13 | 45 |
| 2000 | 4 | 0 | 2 | 3 | 16 | 5 | 21 | 23 | 6 | 23 | 103 |
| 3500 | 4 | 0 | 1 | 0 | 8 | 2 | 11 | 19 | 8 | 16 | 69 |
| 4500 | 4 | 2 | 1 | 1 | 5 | 1 | 6 | 10 | 8 | 12 | 50 |
| 4900 | 5 | 2 | 5 | 1 | 6 | 1 | 13 | 17 | 11 | 41 | 102 |
| Total obs. | 42 | 16 | 22 | 12 | 91 | 24 | 108 | 115 | 51 | 185 | 666 |

Table A.5: Determinants of changes in risk aversion: non-linear effects

This table reports robustness analysis for Table VII in the text. The first column reports ordered probit model estimates for first difference of the qualitative measure of risk aversion. The last column report interval regressions estimates for the changes in the risk premium of the lottery scaled by its expected value. All the other variables are defined in the Data Appendix, Section A4. Robust standard errors are in brackets. ***/*** indicates statistical significance at the 10%, 5%, and 1% level. Changes in net wealth have been trimmed out at the first and ninety-ninth percentile.

| | Change in Qualitative Measure of Risk Aversion | Change in Quantitative Measure of Risk Aversion |
|--|---|--|
| Risk Aversion Qualitative: 2007 | -1.168*** (0.084) | |
| Risk Aversion Quantitative: 2007 | | -0.853*** (0.035) |
| Male | -0.405*** (0.103) | 0.126** (0.053) |
| Age | 0.005 (0.034) | 0.022 (0.016) |
| Age2/100 | 0.004 (0.032) | -0.000 (0.000) |
| Education | -0.039*** (0.012) | -0.003 (0.005) |
| Δ Log Net Wealth 2009-2008 | 0.134 (0.562) | -0.229 (0.275) |
| $(\Delta$ Log Net Wealth 2009-2008) ² | -1.153 (1.167) | -0.739 (0.725) |
| Observations | 572 | 572 |

Table A.6: Experimental evidence

The table reports estimates of the effect of the treatment on subjects risk aversion. In columns 1 and 2 the dependent variable is the quantitative measure of risk aversion measured by the risk premium of the lottery; in columns 3 and 4 the left hand side is the qualitative measure of risk aversion; and in columns 5 and 6 a dummy variable equal to 1 if low risk investments are chosen. Columns 1-4 report results from OLS regressions, while columns 5-6 marginal effects from probit estimates. The variable “Treated” is a dummy variable equal to one if the individual was treated by showing him the video, and zero otherwise. All the other variables are defined in Table I and in the Data Appendix, Section A4. Robust standard errors are in brackets. ***/** indicates statistical significance at the 10%, 5%, and 1% level

| | Risk Aversion Quantitative | | Risk Aversion Qualitative | | Prob. Choose Low Risk Inv. | |
|--------------------------|----------------------------|--------------|---------------------------|----------|----------------------------|----------|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Treated | 671.739** | 637.516** | 0.128 | 0.120 | 0.135** | 0.143** |
| | (300.210) | (300.136) | (0.080) | (0.080) | (0.069) | (0.070) |
| Male | | -347.001 | | -0.185** | | -0.165** |
| | | (313.255) | | (0.080) | | (0.071) |
| Income (Million dollars) | | 980.767 | | -0.193 | | 0.200 |
| | | (1,032.326) | | (0.397) | | (0.303) |
| Constant | 2,526.087*** | 2,548.478*** | 2.409*** | 2.510*** | | |
| | (214.947) | (293.520) | (0.055) | (0.078) | | |
| Observations | 207 | 203 | 210 | 206 | 210 | 206 |
| R-squared | 0.023 | 0.028 | 0.012 | 0.036 | 0.013 | 0.031 |