

Wealth and Portfolio Choice

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Disclaimer

The views expressed are my own and do not necessarily reflect the views of the European Central Bank or those of the euro system.

Motivation

Relationship between **household wealth** and **portfolio choices** is at the **heart of empirical investigations** in the **household finance** literature

Draw inference on:

- Importance of *transaction* and *information* costs
 - offer some explanation towards equity premium puzzle
 - puzzling high fraction of wealthy non-stockholders
- Nature of households' *attitudes towards risk*
 - under CRRA preferences the share of risky assets should be independent of wealth

Yet, it is **challenging to estimate** the effect of wealth shocks on stock ownership and risky portfolio shares using *observational data* and for *the general population*

Related literature

- **HF**: *panel data* (Alessie et al. 2001); *unexpected inheritances* (Andersen and Nielsen 2011); *lottery winners* (Brigs et al. 2021)
- **Household-specific** estimates of the marginal propensity to consume (**MPC**) out of **income shock scenarios**: Shapiro (2003), Jappelli and Pistaferri (2014), Christelis et al. (2019), Fuster et al. (2018), Bunn et al. (2019), Christelis et al. (2021)
 - Estimates are **not confounded** by the **unobservables** of the **selected sample** that is subject to a realized shock (and in most cases, by the business cycle context in which the shock occurs)
 - Estimates **apply to the population at large**, allowing **comparisons** under different shock scenarios

Wealth and Portfolio Choice

Hard to estimate a causal wealth effect with observational data:

- a) **Reverse causality** (e.g., stock market participants may secure high returns)
- b) **Correlation with household unobservables** that affect the decision to invest in risky financial assets (e.g., time-varying risk aversion).
- c) Need to **distinguish exogenous changes in wealth** (e.g., some households have been particularly successful in their asset allocation, avoiding market crashes or exploiting market booms)
- d) Quasi-exogenous wealth shocks (e.g., *lotteries, inheritances*) often regard **restricted** or **selected groups** of households

What we do

- Implement a **survey experiment** asking households how they would allocate **randomly assigned lottery gains** of different size between spending, debt repayment **and** saving and investment in **various financial assets**
- Estimate the **causal effect of household resources** on **stock market participation** and on the **share of financial assets** invested in stocks and mutual funds.

What we find

On **participation**, confirm a **positive gradient** between wealth shocks and stock ownership (Guiso and Sodini 2013)

- For every 10k euro increase in wealth: +1.5 pp in participation
- Going from the lowest (5k) to the highest lottery (50k): +6 pp in participation
- +2 pp in participation for relatively more financially literate
- Even for relatively large wealth shocks (50k) the *majority does not invest in stocks*
- Participation is negatively affected by the financial fear due to Covid-19

What we find

Change in the **asset share**: **insensitive** to changes in wealth, except at higher wealth levels

- Supports **CRRA** preferences
- Holds for both stocks held directly and stocks plus mutual funds
- Applies equally well to investors with different levels of financial sophistication and various population sub-groups

Consumer Expectations Survey (CES)

- **Internet panel** administered by the **ECB**; DE, FR, ES, IT, BE, NL; ~ 10,000 households; pilot started January 2020 (January 2021: +5 EA countries; 19,000 households)
- Sample: **PS** (via RD) & **NPS** (via existing online panels); sample weights: nationally representative
- Household **expectations** (*e.g., inflation, income, house prices, interest rates, GDP growth, labor markets*) and **behavior** (*e.g., spending, investment*)
- **Mixed-frequency modular approach** (background; monthly, quarterly, annual topical modules; special-purpose ad hoc surveys)

Consumer Expectations Survey (CES)

- **June 2021:** 10 min special-purpose survey following the regular survey wave (*background information on financial assets and subsequently implement the survey experiment*)
- For a CES description see: *ECB Evaluation Report (OP, 2021)* and *Georgarakos and Kenny (JME, 2022)*
- https://www.ecb.europa.eu/stats/ecb_surveys/consumer_exp_survey/html/index.en.html

Survey experiment: screen 1

Imagine you win a lottery of $\langle \text{Amount} \rangle$ today. How would you use this unexpected windfall over the next 12 months? Please allocate the $\langle \text{Amount} \rangle$ over the following three categories.

$\langle \text{Amount} \rangle$: 5, 10, 20, 30 and 50 thousand euro

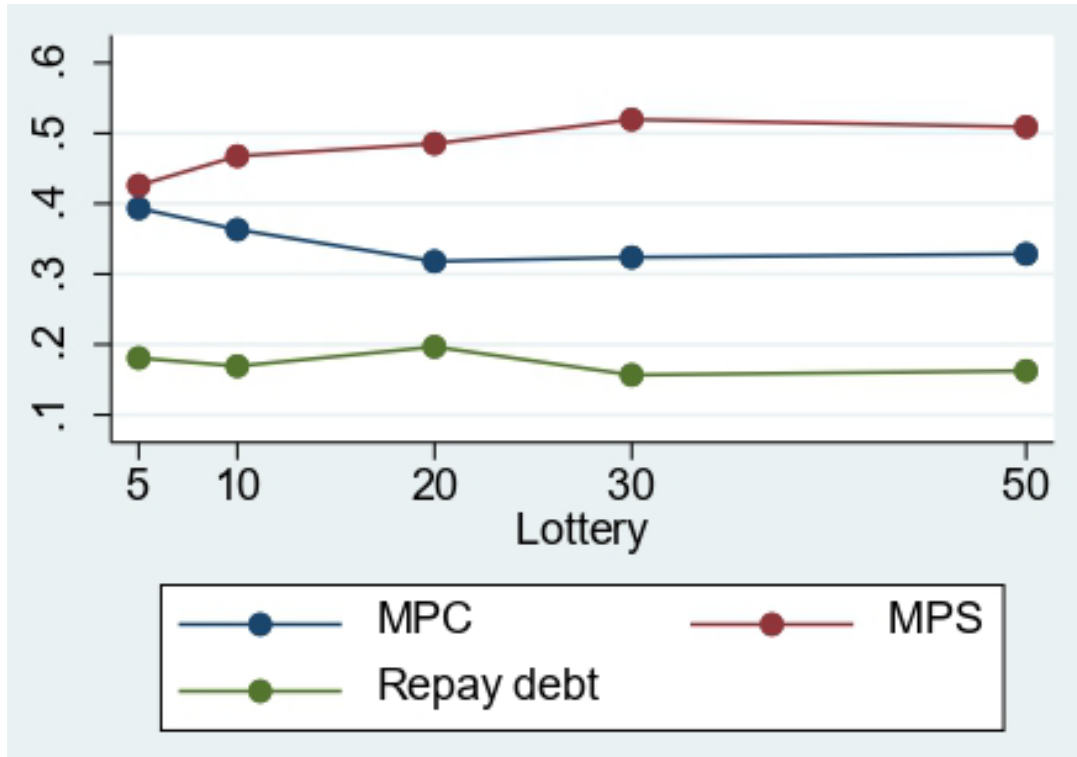
- (1) Buy goods and services (including food, housing costs and rent, utility bills, clothing, and long-lasting goods such as home improvements, furniture and electronics, etc.)
- (2) Save and invest in financial assets
- (3) Repay debts

Survey experiment: screen II

You said that you would save or invest in financial assets € <A>. Please indicate in which of the following asset categories you would save/invest this amount.

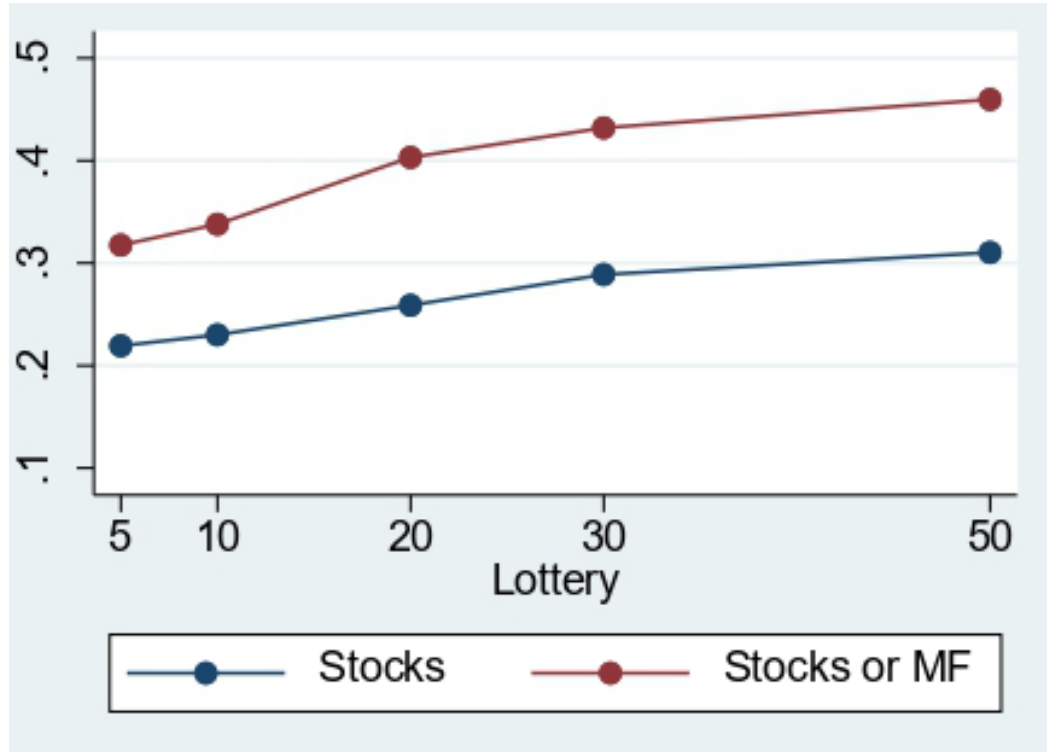
- (i) current accounts and saving accounts
- (ii) stocks and shares
- (iii) mutual funds
- (iv) retirement and pension products (including life insurances)
- (v) bonds

Propensity to spend, save and repay debt



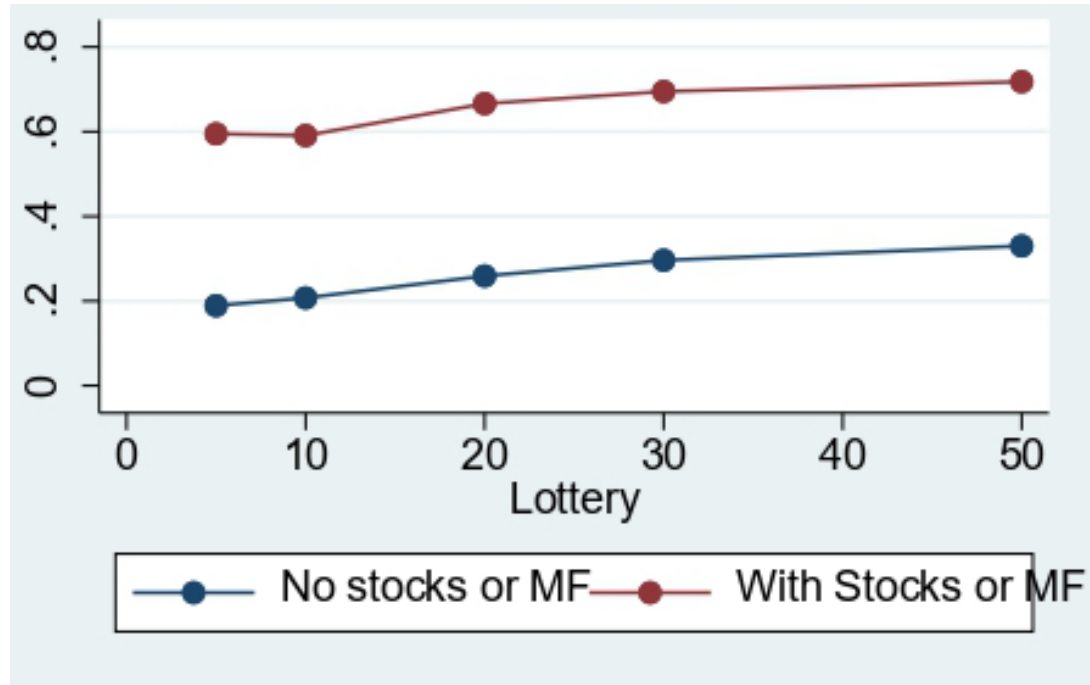
- Negative association between MPC and shock size

Propensity to own stocks and mutual funds



- Positive association between stock ownership and shock size; majority would not invest in stocks even if wins 50k

Propensity to own stocks and mutual funds by (pre-experiment) stockholding status



- From 5k to 50k: +8 pp for non-stockholders; +6 pp for stockholders

Estimation of propensity to own stocks

	Baseline	Pre-lottery non owners	Pre-lottery owners
Lottery 10k	0.025 (0.014)*	0.026 (0.014)*	0.008 (0.032)
Lottery 20k	0.045 (0.014)***	0.045 (0.014)***	0.024 (0.032)
Lottery 30k	0.083 (0.014)***	0.076 (0.014)***	0.127 (0.033)***
Lottery 50k	0.086 (0.014)***	0.084 (0.014)***	0.087 (0.032)***
<i>N</i>	9,677	7,433	2,244

External validity

Broadly consistent with estimates of:

- Andersen and Nielsen (2011)
 - Denmark; unexpected inheritances due to sudden death
 - receiving an unexpected inheritance of about 50k euro: +12.9 pp in stock ownership
- Briggs et al. (2021)
 - Sweden; lottery winners
 - winning a lottery prize in the 15-150k USD range: +8.2 pp in stock ownership

RCT results by level of financial fear due to Covid

Gift amount (euros)	Stocks	Stocks and mutual funds
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**Panel A. Financial concern due to
COVID-19 less or equal to the median**

5,000	0.220	0.329
10,000	0.208	0.330
20,000	0.294	0.459
30,000	0.286	0.424
50,000	0.317	0.488

**Panel B. Financial concern due to
COVID-19 above the median**

5,000	0.203	0.290
10,000	0.247	0.338
20,000	0.222	0.353
30,000	0.264	0.401
50,000	0.309	0.427

Propensity to own stocks by financial literacy

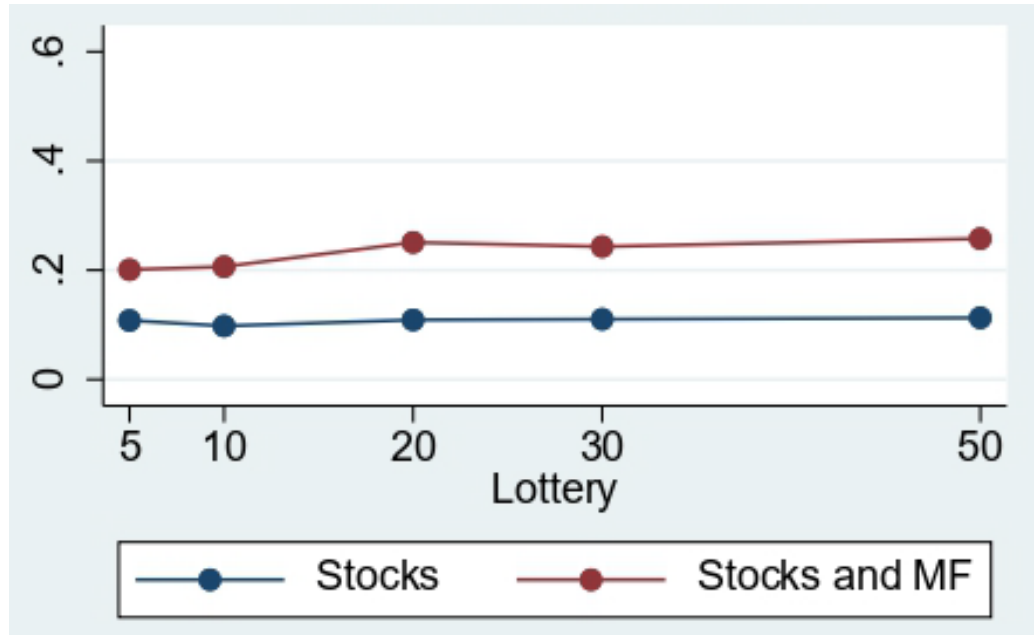
	Stocks Low literacy	Stocks High literacy
Lottery 10k	0.012	0.037
	(0.020)	(0.021)*
Lottery 20k	0.032	0.055
	(0.020)*	(0.020)***
Lottery 30k	0.058	0.105
	(0.019)***	(0.020)***
Lottery 50k	0.062	0.112
	(0.019)***	(0.020)***
<i>N</i>	4,560	5,005

- Relatively lower information costs make it easier to invest in risky assets, at any given level of wealth

Propensity to own stocks: heterogeneity by groups

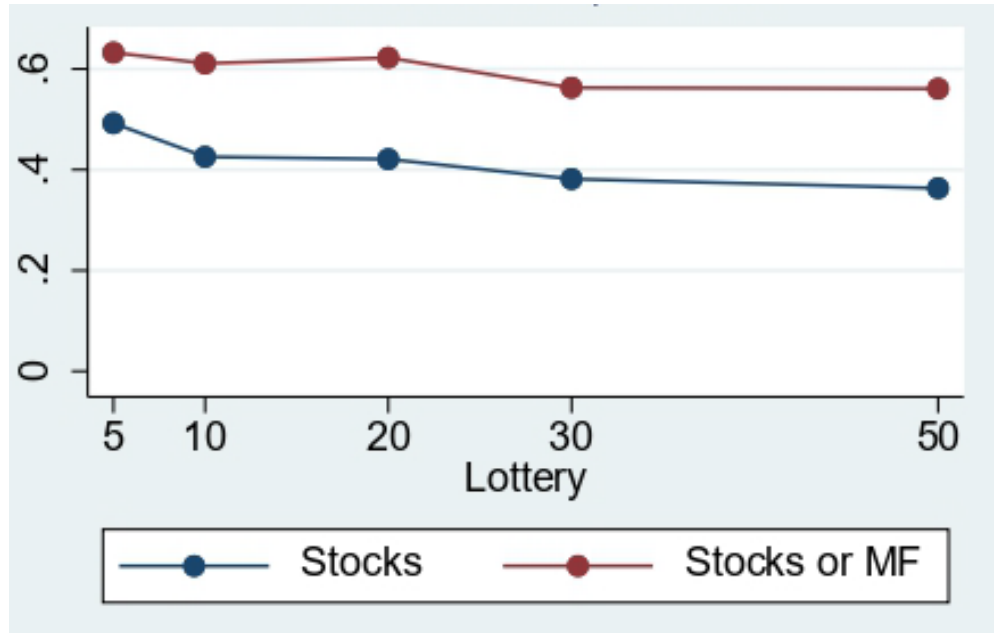
- Liquidity constrained
- Over-confidence (wealth shocks relatively stronger for more confident)
- Stock market expectations (wealth shocks relatively stronger for more optimistic)
- Trust others (wealth shocks relatively stronger for more trusting)

Risky asset shares: unconditional



- Moderate increase in unconditional risky shares by lottery size (flat at 20k+)

Risky asset shares: conditional



- Change in *conditional* share: flat
- Change in *unconditional* share mainly driven by increased participation

Risky asset shares: stocks

	OLS	OLS, Pre-lottery stockholders
Lottery 10k	0.003 (0.002)	-0.002 (0.005)
Lottery 20k	0.007 (0.003)**	-0.019 (0.007)***
Lottery 30k	0.016 (0.003)***	-0.004 (0.007)
Lottery 50k	0.016 (0.003)***	-0.013 (0.007)*
<i>N</i>	8,175	2,191

$$\Delta\alpha_{it} = \alpha + \sum_{j=1}^M \eta_j L_{jt} + \varepsilon_i$$

Risky asset shares: stocks and mutual funds

	OLS	OLS, stockholders only
Lottery 10k	0.004 (0.003)	-0.000 (0.005)
Lottery 20k	0.023 (0.004)***	-0.000 (0.006)
Lottery 30k	0.032 (0.005)***	0.009 (0.007)
Lottery 50k	0.045 (0.005)***	0.017 (0.007)**
<i>N</i>	8,175	3,122

Conclusions

Implement a **novel survey experiment** (wealth shock is **exogenous**; **realistic menu** of choices, incl. spending; saving; **portfolio allocation**)

Derive **causal estimates** of the effect of wealth on stock market participation and the risky asset share

- participation costs limit stockholding, esp. for less sophisticated investors, but even for 50k lottery majority would not invest in stocks (suggestive for *stock price beliefs, lack of trust, inertia, other behavioral biases...*)
- conditional asset shares generally do not depend on the size of wealth shocks: **CRRA preferences** for the vast majority of risky asset investors

Thank you!