

Is the gender gap in finance a gap in familiarity?

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Polymakers:

- Financial inclusion of women is an important issue on policy agenda:
G20, OECD: CLOSING THE GAP:
- **OECD/INFE POLICY GUIDANCE ON ADDRESSING WOMEN'S AND GIRLS' NEEDS FOR FINANCIAL AWARENESS AND EDUCATION**

Stylized facts: behaviour

- Women participate less in the stock market and if they do, they take less risk
- If women need to make portfolio decisions regarding their pension, they take less risk (e.g. Sunden and Surette, 1998)

This presentation

Is about our research aimed at contributing to an explanation of the gender gap in investing behavior

- The gender gap may imply that **women** take *too little* risk and participate too little, but also that **men** take *too much* risk and participate too much in stock market

Note 2

- There is no convincing evidence of a beneficial effect of financial education and increasing financial literacy on financial decision making (Willis AER, Mandell CFA Institute, Prast and Van Soest 2014)

Why no convincing evidence? (1)

- Correlation between financial literacy and financial planning has indeed been found, eg by Lusardi *et al*
- However, they define planning as “thinking about saving for retirement“
- Moreover, what are the wellknown potential problems with interpreting a correlation?

Correlation vs causality

- It may be that people become more financially literate by planning (reverse causality)
- It may be that both planning and literacy result from a third factor

Why no convincing evidence? (2)

- Financial education does not lead to better planning behavior and sometimes even to worse decisions (see Willis 2009 for an overview, and Mandell 2013 for the results of Jump\$tart)
 - Most likely explanations:
 - Financial education increases overconfidence (I can beat the market)
 - Financial education makes people aware of potential of financial products

Conventional explanation of gap

- Women are less financially literate than men
- Women are less risk tolerant than men

Literacy tests

- Women have lower scores on financial literacy tests than men (e.g. Lusardi and Mitchell, 2008)
- Gender gap in measured and self assessed financial literacy (Van Rooij *et al* 2007, Eckel and Grossman 2002, Arano *et al.* 2010)

However

- Gender gap in financial literacy is reduced if “don’t know” is not an option (Bucher-Koenen *et al*, 2012)
- If reminded of their gender, women score worse in math and in negotiating (Good and Harder 2008, Kray *et al* 2002, Spencer *et al.* 1999), just as white male athletes perform worse if reminded of their color prior to match (Stone *et al*, 1999)
- In egalitarian societies, gender gap in math scores disappears (Guiso *et al*, 2008)

Hence

- Could it be that we measure not only financial knowledge, but also self confidence?

Risk tolerance

- Women have stronger preference for DB over DC than men (Van Rooij *et al* 2007)
- Men make riskier investment decisions
- Women score lower in financial risk tolerance tests (both measured and self assessed)

However

- In gambling no gender gap in risk taking, and in social decisions women take more risk than men (Weber *et al.* 2002, Harris and Jenkins 2006)
- In all girls environment, girls take more risk than in mixed environment (Booth and Nolan, 2012)

Hence

- Could it be that risk taking is affected by both risk tolerance (= a preference) and perception of ones ability to manage risk, and that this perception differs between men and women and is activated by stereotype threat?

Moreover

- Women's financial choices are more context-specific and sensitive to social clues than men's (Croson and Gneezy, 2009)
- Women process information differently than men, with the result that they tend to be more cautious in decision making (Meyers-Levy, 1989)

Our work

- We want to assess whether a *gender gap in familiarity* may play a role
- Familiarity is not new in economics and finance
 - Merton, theoretical model
 - Huberman, investor home bias

Home bias in investing

- Investors hold much more stock of companies in home country than is predicted by finance theory -too little diversification
- One of the six major puzzles in economics (Obstfeld and Rogoff, 2000)
- Has NOT disappeared with information technology and removal of capital controls

More empirical evidence home bias

Regional bias (Huberman, 2003)

Local bias (Coval and Moskowitz 1999)

Industry bias (Doskeland and Hvide, 2011)

Employer bias for pension savings (Laibson 2005)

Familiarity in Merton (1987)

- Theoretical model assuming perfect markets, no regulation or info asymmetries
- Shows that if investors only pay attention to info about stocks they are aware of (“familiar” stocks), they invest only in a subset of all available assets
 - > The ones most familiar

- Huberman conclusion:
- “People invest in the familiar while often ignoring the principles of portfolio theory“
- Exposure results in positive affect
- Wishful thinking plays a role
 - > Hope affects expectation

Familiarity and the gender gap

- Could there be a gender gap in familiarity with the stock market?
- Eg with the companies most traded
- Or with the language used

More work on familiarity and investing

Post-unification differences in investor behavior by Germans of East and West? No convincing evidence (Fuchs and Haliassos, 2014)

Differences in trading in stocks whose ticker starts with A, B or C instead of later letter in alphabet

- Familiarity?
- Default/primacy effect?

- Panel of over 2500 hh, all hh members
- Once a year full set of questions
- Additional questions possible, answers can be linked to full set
- Internet-based
- Used often for (Netspar) research
- See Teppa and Vis (2012)

This study

- We ask respondents to allocate hypothetical pension savings (100K euro) over a risk free asset and a stock basket
- We randomly assign respondents to a pink or a blue condition

Pink or blue condition

- Blue: allocate over risk free asset and a “blue” stock basket (15 stocks) based on amsterdam Exchanges Index, traded on Euronext, Amsterdam
 - > AEX mostly consists of steel, chemicals, oil
- Pink: allocate over risk free asset and a “pink” stock basket (15 stocks) based on advertisements in women magazines

Selection procedure blue

- Take 15 out of 25 AEX representative for stock basket composition according to industry

Blue stock basket

Ahold
Air France-KLM
Akzo Nobel
ArcelorMittal
ASML
CORIO
DE Master Blenders
DSM
Fugro
Philips
Shell
SBM Offshore
Unibail Rodamco
Unilever

Selection procedure pink

- Popular women/s magazines, one copy for each season, Winter 2011 – Spring 2013
- Advertisements by stock listed companies
- Selection to mirror advertising industry composition and have similar diversification as AEX/blue portfolio

Construction of pink portfolio (1)

- Advertisements in women magazines, 2011-summer 2013, 1 per season
 - > Italian: Anna, Amica, Donna Moderna, Gioia, Glamour, Myself
 - > Dutch : Libelle, Flair, Viva, Linda
 - > English UK : Elle, Vogue, Good Housekeeping, Glamour
 - > English US: Elle, Vogue, Good Housekeeping, Cosmopolitan

Do women really read women's magazines?

Table 1. Top Ten Types of Magazines in the Netherlands (sales in mln euros), 2012

Women's magazines	305.2
Radio and television guides	202.0
Lifestyle	105.5
Opinion	55.7
Home and garden	49.2
Youth and teens	47.6
Sports	46.9
Popular science	28.2
Automobiles	23.7
Recreation	21.9

Source: www.mediafacts.nl (2013)

Sales underestimates exposure to advertisements, as many file through magazines without buying

Sales are of Dutch magazines, while in the Netherlands the section of international magazines is much larger (UK, US, Italian, French, German) especially for women's magazines

Number of Dutch women magazines is strictly defined eg excludes gossip, "Chi", "Gente"

Construction of pink portfolio (2)

- Select advertising companies that are traded in the stock market (sometimes under a different name), $n=65$
- Make out of those 65 a selection of 15, making sure to reflect industry composition and to have both luxury and non-luxury, leaving out male/neutral oriented eg cars
- One exception: we added Ikea because we thought it more familiar than the other “home” categories

Pink basket

Estee Lauder

Dior

Ralph Lauren

Tiffany & Co

L' Oreal

Zara

Revlon

Shiseido

Burberry

Ikea

Douglas

Svenska Cellulosa

Esprit

International Flavors and Fragrances

Prada

Pink vs blue

Pink:

consumer products, mainly apparel

various stock exchanges

no Euronext Amsterdam, no Dutch companies

Blue:

mostly raw materials

consumer services

all Euronext, all Dutch companies

This study uses

- The 2012 DHS wave published in March 2013
- Additional question on savings allocation submitted in September 2013

Additional question

- Imagine you have 100.000 euro's available to put aside for retirement. You need to allocate it over government bonds with an interest rate of 4 percent, and a basket of stocks which is expected to yield a return of 8 percent. You cannot touch the money until retirement.
- You do not invest in individual stock but in a 'basket' of 15 different stocks, which reduces the risk without reducing the return, as bad outcomes of one firm may be compensated for by good outcomes of another.
- Upon retirement you will receive with certainty the money that you put in the government bonds plus accumulated interest, hence it is similar to a savings account with a fixed interest rate. The money you put in the stock basket is expected to increase in value eight percent each year. However, this is not certain. It is possible that it grows with more than eight percent each year, but also with less.

Our question (continued)

A numerical example.

If you put the whole amount in government bonds, it will be worth 148.000 in ten years. If you put everything in stocks, it is expected to be worth 215.000 in ten years. However, it can also be more, for example 280.000, or less, for example 130.000. Assume that you have 100.000 euro available to set aside for retirement. You can choose between risk free government bonds with an interest rate of 4 percent, and a basket of stocks with an expected return of 8 percent. You cannot touch your savings until you retire

How would you allocate the money?

Response ordering

- Framing A. How would you allocate the money?

Bondseuro

Stockseuro

Or

- Framing B. How would you allocate the money?

Stockseuro

Bondseuro

Summary statistics

Our sample: 16 years and older, not retired

Data collection: week 36, 2013

N of household members: 2138

Response rate 61.7%*

N of observations 1319

*normally around 80%

Why low response rate?

- Pensioners usually have response rate above average, but were not included here
- Many more respondents having opened the link but closed it without answering when they saw the question (110, against normally around 20)
 - > Many more women than men chose to close link (69%, 31%)

Some aggregate findings

- 96% of men, 93% of women allocate an amount to stock basket
- More man then women choose to invest all in stock basket
- Many choose fifty/fifty

Allocation distribution

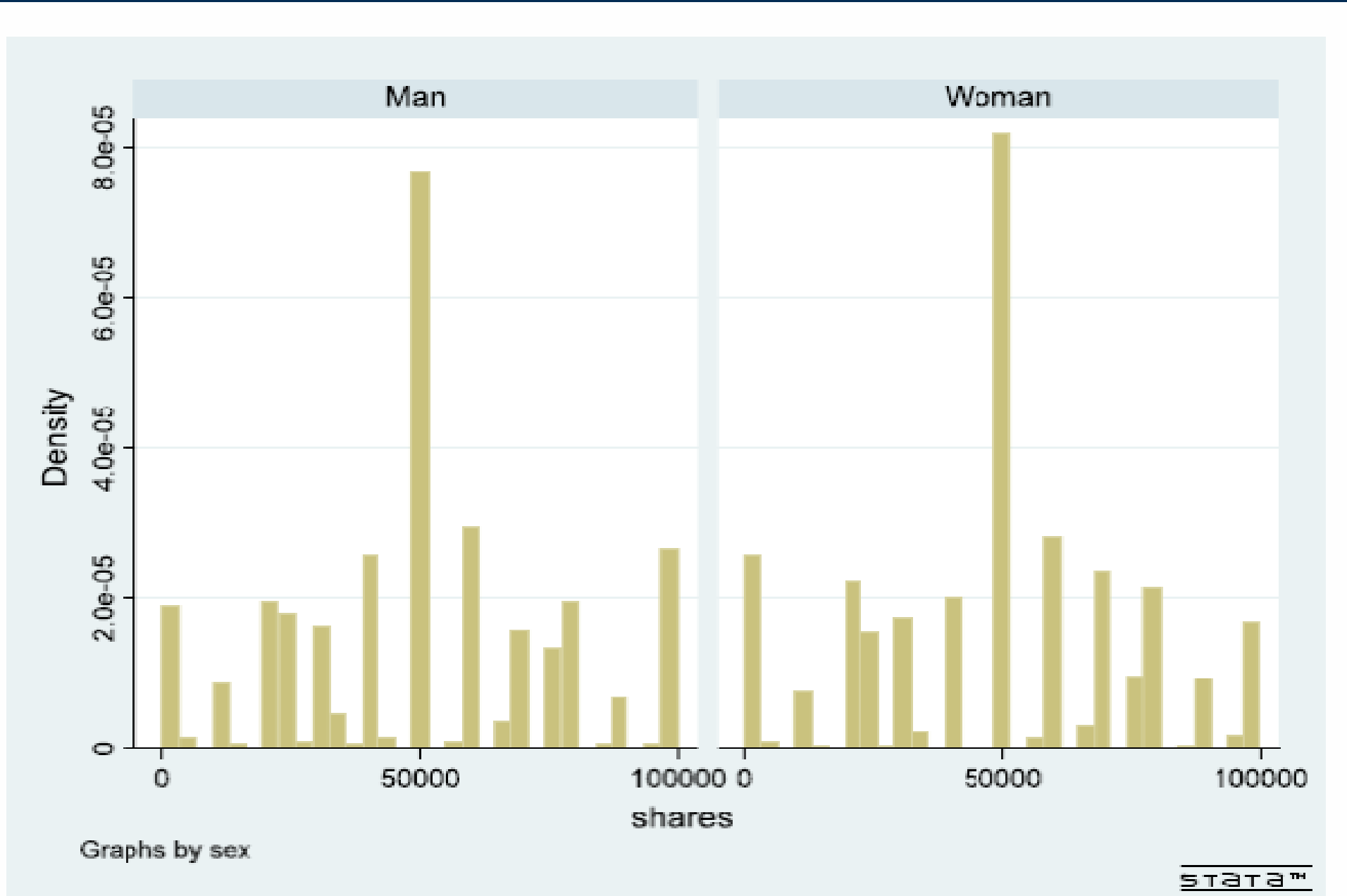


Table 7. Response ordering effect: % allocated to stocks

	Men	Women
Stock basket first	56,670	60,851
Bonds first	46,623	36,866
Primacy effect (in €)	10,047*	23,985*

Source: authors based on CentER data panel outcomes

*significant effect

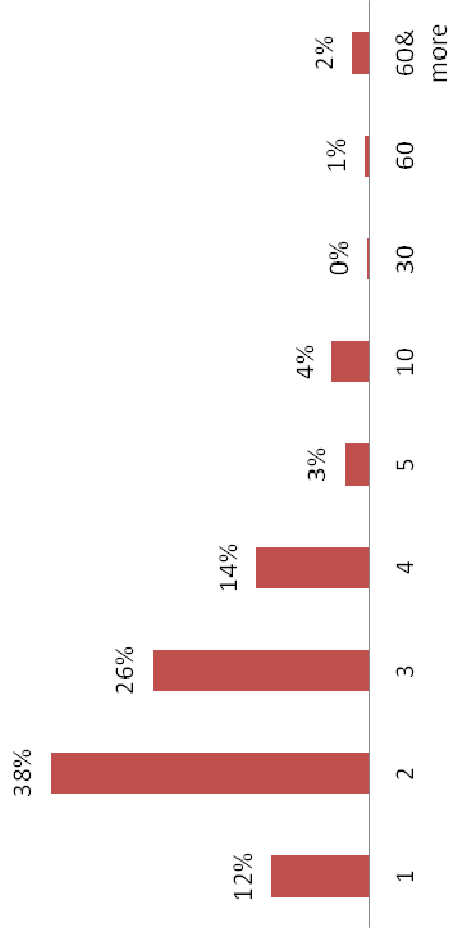
Table 5. Respondents' occupation according to gender and industry

	Women	Men	Profit/Not for Profit
Not applicable	230	71	
Agriculture	4	14	P
Heavy industry	18	307	P
Energy and water	3	9	P/NP
Construction	9	43	P
Retail, trade	63	44	P
Hotels, restaurants, cafes	7	4	P
Transport	7	32	P
Financial industry	20	32	P
Commercial services	50	79	P
Public administration	39	68	NP
Education	62	48	NP
Health	173	48	NP
Culture, sports, art	18	13	NP
Charitable institutions	7	2	NP
Total	710	618	

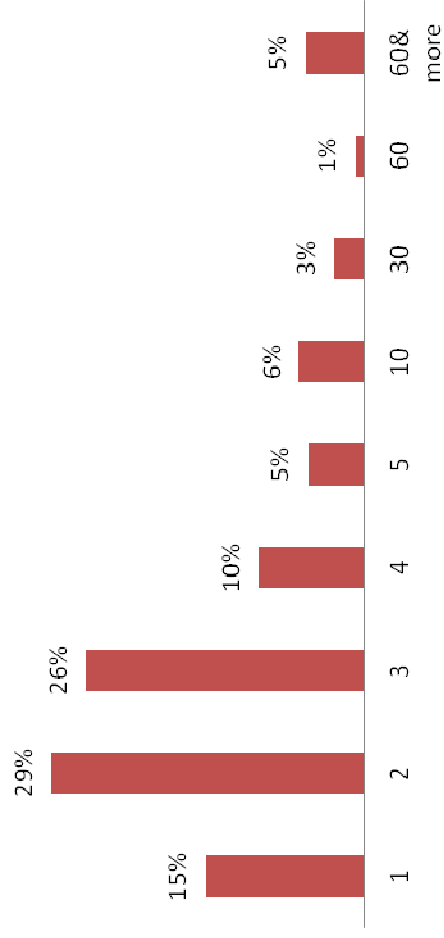
Some comments

- Fifty-fifty allocation: In line with $1/n$ heuristic found for portfolio choice in DC plans (Huberman and Jiang, *Journal of Finance*, 2006)
- Allocation to stocks much higher than in Van Rooij *et al* (2007)
- Primacy effect and its gender gap in line with earlier findings ((Brunel and Nelson, 2003)

Female Pink Stock



Female Blue



Allocation to stock basket

	Blu	Pink	Color Gap
Average amount:			
Men	52,196	54,753	2,557
Women	53,150	53,762	0,612
Gender gap	- 954	991	
% Stock participation:	Blu	Pink	
Men	95.7 %	92.9 %	2.8
Women	92.6 %	91 %	1.6
Gender gap	3,1 %point	1.9 %point	

Gender gap in stock market participation

Blue condition: gap = 3,1 percentage points

Pink condition: gap = 1,9 percentage points

Hence pink reduces gap by 39 percent

Table 2: Summary statistics, on question evaluation

	Respondents who got to choose from Pink stocks and bonds			Respondents who got to choose from AEX companies' Stocks and bonds			All types together		
	Male (1)	Female (2)	All (3)	Male (4)	Female (5)	All (6)	Male (7)	Female (8)	All (9)
Difficulty of task	2.01	2.45***	2.24	2.05	2.54***	2.32	2.03	2.50	2.28
Clearness of task	4.09	4.05	4.07	4.15	4.10	4.13	4.12	4.08***	4.10
Thought-provoking	2.77	2.61	2.69	2.69	2.82	2.76	2.73	2.72	2.73
Interest in the task	3.34	2.90***	3.11	3.27	3.04***	3.14	3.30	2.97***	3.13
Pleasure of completing the task	3.52	3.26***	3.38	3.57	3.36***	3.46	3.54	3.31***	3.42
Comments on the task	1.97	1.96	1.97	1.97	1.97	1.97	1.97	1.97	1.97
Duration of survey (seconds)	4051.08	3060.70	3533.76	4308.53	8758.00	6739.13	4178.54	6018.45	5161.96
Observations	(113.63) 310	(119.26) 339	(116.03) 649	(107.40) 304	(132.04) 366	(121.08) 670	(109.81) 614	(127.19) 705	(117.37) 1319

The stars represent statistically significant t-test mean difference between the stock or bonds options allocations by women versus men, at 1%, 5% and 10% significance levels, respectively.

Decision time explained

Table 3: Regression of Duration on Gender, and Familiarity

	All (1)	Women (2)	Men (3)
Pink Portfolio	-3303.64	-6132.05***	-416.052
	(1726.04)	(2666.0)	(2078.8)
Difficulty of task	-263.771	666.1979	-1856.66**
	(702.04)	(1018)	(930.8)
Clearness of task	-498.08	31.46901	-1736.69
	(966.7)	(1446.8)	(1216)
Thought-provoking	-180.841	-3043.38***	2940***
	(835.7)	(1316.6)	(992.4)
Interest in the task	185.357	2769.61	-2615.88
	(1133.2)	(1763.1)	(1355.8)
Pleasure of completing the task	-793.741	-1838.69	1184.387
	(1142.2)	(1688)	(1457.2)
Comments on the task	-9301.68	-10032.9	-8761.79
	(4893.7)	(7512.7)	(5947.1)
Gender	1736.34	(omitted)	(omitted)
	(1770.5)		
Observations	1319	705	614
R-squared	0.0078	0.0192	0.0236

*, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Further look at the data

- CentERpanel database includes objective and subjective background variables
- Separate regression men, women
- Dependent = allocated money to stock portfolio out of 100,000

Age, gender, allocation

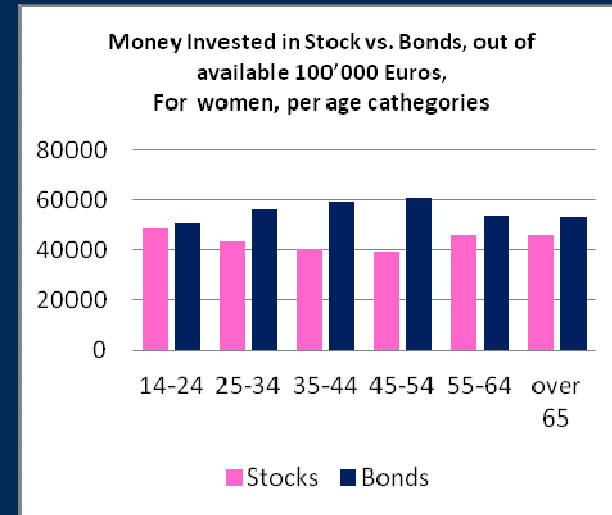
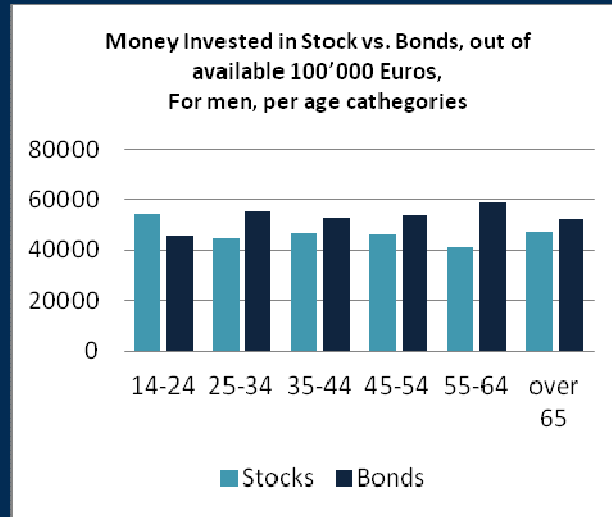


Table 10. Tobit regression on the amount allocated to shares out of € 100K

	Female	Male	Female	Male	Female	Male	female	Male
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Pink	-0.0279	0.143056	-0.0291	0.168056	-0.0108	0.236806	-0.0359	0.0068
	(0.0257)	(0.0270)	(0.0258)	(0.0272)	(0.0453)	(0.0419)	(0.0331)	(0.0336)
Pink*60ov	0.1466***	-0.0824	0.1545***	-0.0796	0.1581*	-0.0797	0.1572**	-0.0525
	(0.0567)	(0.0698)	(0.0577)	(0.0703)	(0.0820)	(0.1071)	(0.0625)	(0.0788)
Over60	-0.0225	0.222222	-0.0398	0.213194	-0.0500	0.417361	-0.0447	0.219444
	(0.0396)	(0.0428)	(0.0419)	(0.0435)	(0.0596)	(0.0686)	(0.0421)	(0.0494)
Net income			-0.0295	0.0083	0.1435***	-0.0104	0.0832**	0.28125
			(0.0346)	(0.0314)	(0.0505)	(0.0591)	(0.0344)	(0.0412)
Urban			0.070833	0.180556	-0.0514	0.075694	-0.0149	0.284028
			(0.0238)	(0.0273)	(0.0384)	(0.0410)	(0.0287)	(0.0327)
Partner present			0.19375	0.071528	-0.1775***	0.211111	-0.0353	-0.0131
			(0.0355)	(0.0396)	(0.0633)	(0.0775)	(0.0390)	(0.0455)
High education			-0.0141	-0.0291	-0.0390	-0.0296	-0.0741**	-0.0713**
			(0.0260)	(0.0274)	(0.0424)	(0.0475)	(0.0317)	(0.0348)
Havingstocks			-0.0245	0.0067	0.71875	-0.0237	-0.0145	0.0058
			(0.0248)	(0.0258)	(0.0779)	(0.0422)	(0.0413)	(0.0364)

Comments (1)

- Women 60+ allocate more to stocks in the pink than in the blue condition
- No all over difference in risk taking between pink and blue (neither for men nor for women)
- Education level significant only (–) if having paid job is eliminated, and not vice versa
- Effect of income is positive for women, absent for men (note: household income!)

Comments (2)

- Among women, being single corresponds with more allocation to stocks
- Having a paid job impacts negatively on stock allocation for women, positively for men
 - Note: women work in non profit, men in profit sector
- No effect of self assessed financial literacy
- No effect of self assessed risk attitude

Conclusions (1)

- Women in the pink condition find deciding easier than women in the blue condition
- In the pink condition women find deciding easier than men
- In the blue condition men find deciding much easier than women

Conclusions (2)

- We find no evidence that the gender gap in risk taking would be smaller if the index of most traded stocks would contain companies that advertise in women's magazines
- We do find evidence that a pink portfolio would make it easier for women to participate in the stock market

Possible interpretations

- Familiarity with companies plays no role?
- Advertising in women's magazines is not a good measure of familiarity with stocks?
- AEX is home, Pink is foreign: home bias?
- We should have taken Dutch magazines only?

Further elaboration

- Of these data
- A lab experiment with real stakes
- Asking respondents to pick their favorite stocks from a list containing blue and pink
- Eliminating home bias by making blue basket consisting of foreign companies in same industries as AEX
- Choosing cohort based pink companies

- Our selection of magazines may not have been the best for respondents of all generations
- The blue portfolio had two familiar elements that the pink portfolio lacked: all Dutch companies, and all Amsterdam-listed
- Perhaps we should have asked respondents to allocate over bonds and a selection of 15 stocks that they could choose from a blue and pink selection

Thank you for your attention