



Inequality and Financial Literacy

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The growing importance of financial literacy

A new economic landscape

Major changes that increase individuals' responsibility for their financial well-being

- **Changes in the pension landscape**
 - More individual accounts
- **Changes in the labor markets**
 - Workers change jobs often
 - Skill-based wage differentials
- **Changes in the financial markets**
 - More complexity
 - More opportunities to borrow & in large amounts



The “great risk shift”

Risk shift from the government and employers to individuals

How well-equipped are people to make these decisions?



Big project on financial literacy

Our questions

1. What is the level of financial literacy among the population?
2. Are there vulnerable groups?
3. Does financial literacy matter?
 - Is it linked to behavior?
 - More specifically, is it linked to wealth inequality?

Financial Literacy Programme Funded by EIB

Bringing together an international team

The Financial Literacy Programme brings together research teams in 9 countries:

The United States
The Netherlands
Germany
Italy
Sweden
Switzerland
Spain
Portugal
Turkey



Website of the project:

<http://www.globalfinancialliteracyproject.org/>

First question

How well equipped are people to make financial decisions?

- **Aim: Assess knowledge of basic concepts, the *abc's* of personal finance**
- **Use three financial literacy questions**

Measuring financial literacy (I)

To test numeracy and understanding of interest rates, we asked:

“Suppose you had \$100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow?”

- i) More than \$102
- ii) Exactly \$102
- iii) Less than \$102
- iv) Don't know
- v) Refuse to answer

Measuring financial literacy (II)

To test understanding of inflation, we asked:

“Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, with the money in this account, would you be able to buy...”

- i) More than today
- ii) Exactly the same as today
- iii) Less than today
- iv) Don't Know
- v) Refuse to answer

Measuring financial literacy (III)

Finally, to test understanding of risk diversification, we asked:

“Do you think the following statement is true or false?
Buying a single company stock usually provides a safer return than a stock mutual fund.”

- i) True
- ii) False
- iii) Don't Know
- iv) Refuse to answer

Financial Literacy around the World

(FLat World)

Evidence from 13 countries:

- ❖ USA
- ❖ The Netherlands
- ❖ Germany
- ❖ Italy
- ❖ Russia
- ❖ Sweden
- ❖ New Zealand
- ❖ Japan
- ❖ Australia
- ❖ France
- ❖ Switzerland
- ❖ Romania
- ❖ Canada



FLat World

Strikingly similar patterns across countries

- **Financial illiteracy is widespread in the population**
 - Less than half of the population in many countries can answer three basic financial literacy questions
- **Risk diversification is most difficult concept**
 - Similar pattern of response across countries
 - Prevalence of “do not know” answers
- **Gender difference in financial literacy**
 - Women more likely than men to answer “I do not know” to financial literacy questions

Second question

Who are the vulnerable groups?

➤ Who knows the least?

- Those with low income/education, immigrants, those living in rural areas, the elderly, the **young and women**

➤ Women have lower financial literacy

- Need to look closer at the evidence

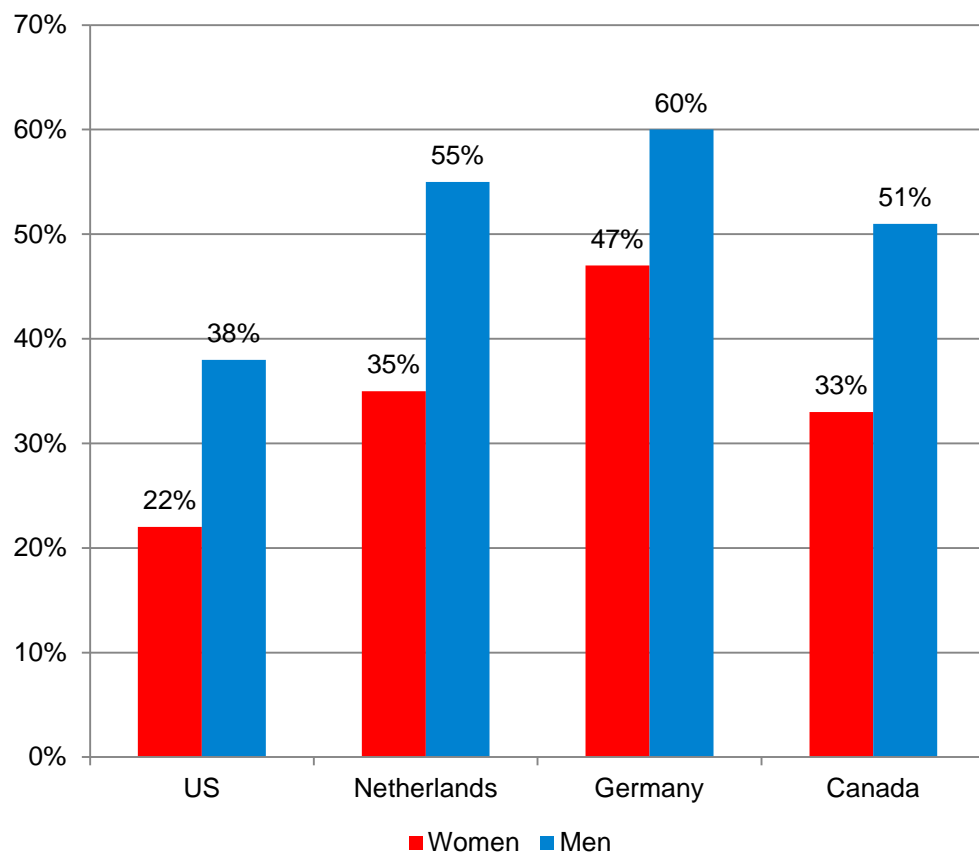
➤ The young have lower financial literacy

- Most data sets have information on respondents 18 and older. New data is available for 15-year olds.

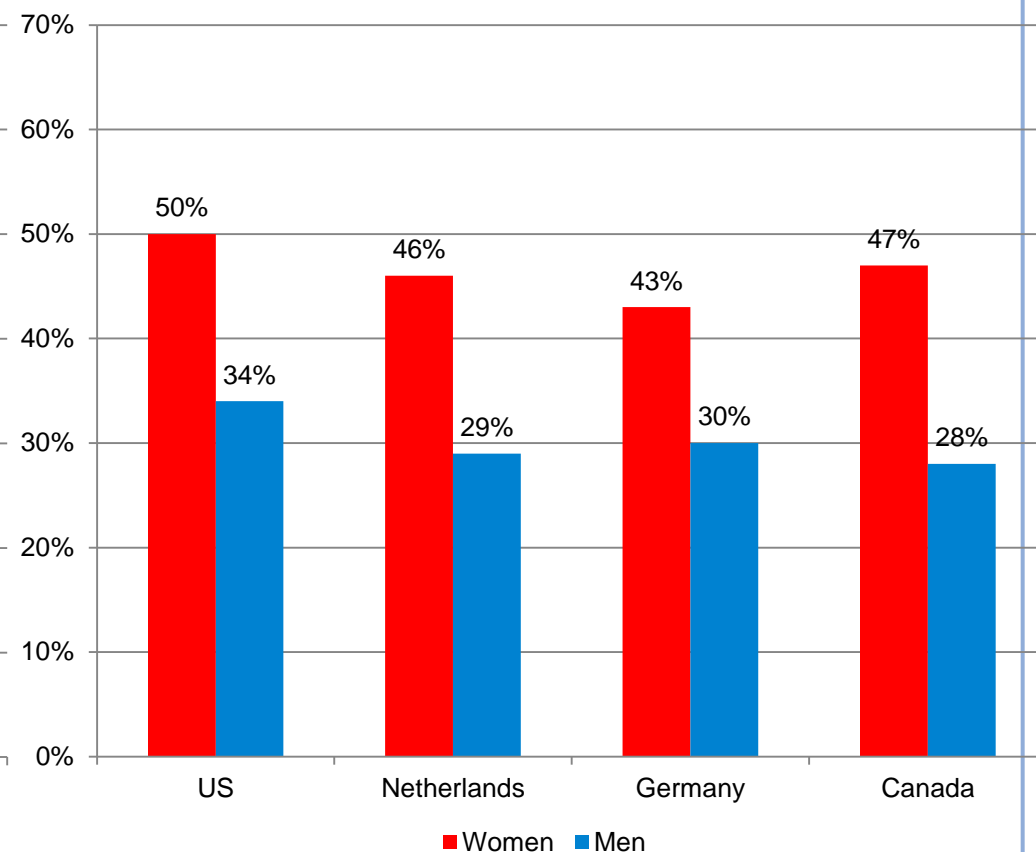
Financial knowledge among women

- Very robust findings of large gender differences in financial knowledge
- Women are much more likely to say “I do not know”

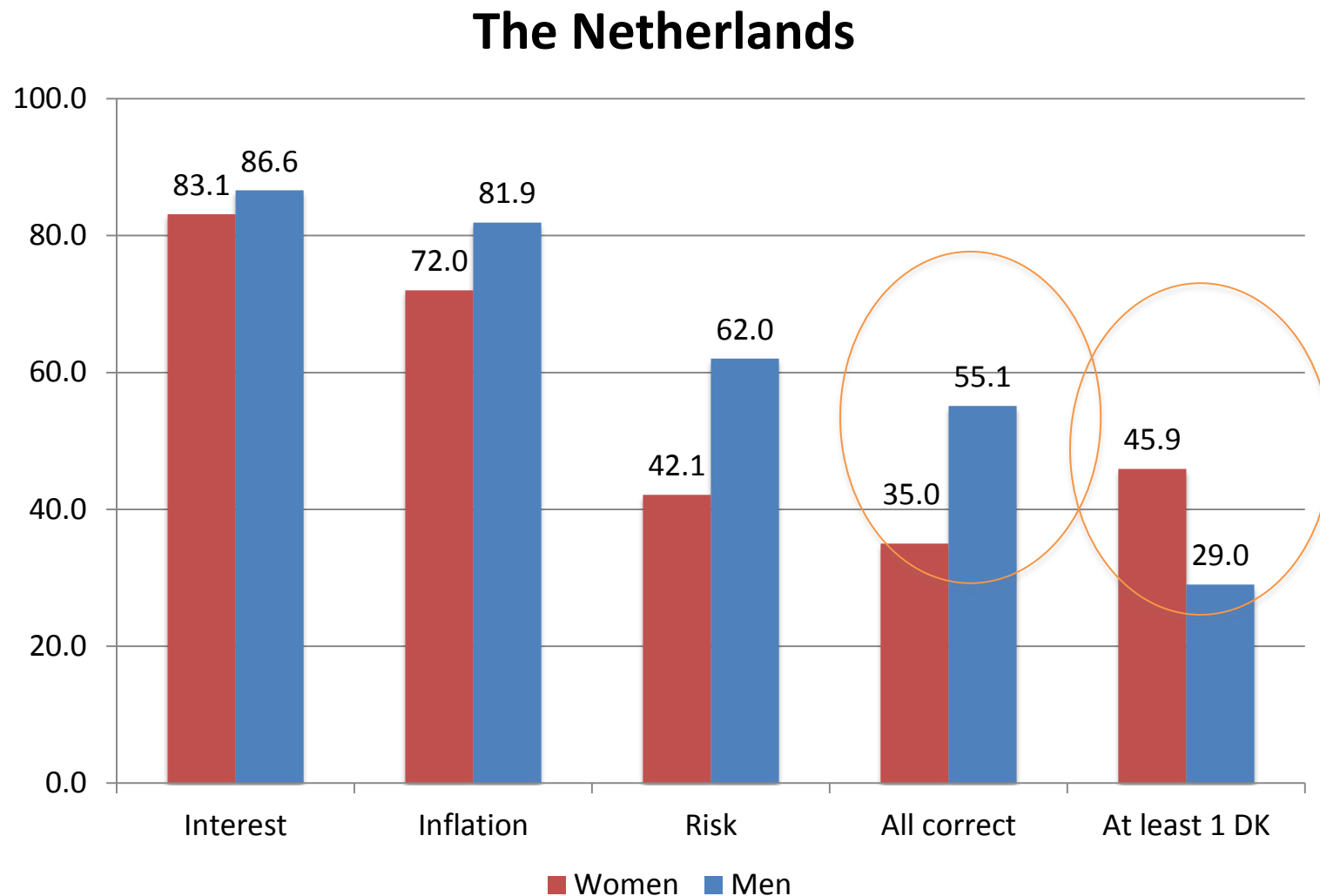
**Financial knowledge by gender
(% answering 3 Qs correctly)**



At least one "don't know" answer, by gender



Gender differences in financial literacy: The Netherlands



Gender differences in financial literacy

Our paper: How financially literate are women?
An overview and new insights

- This pattern of response is true in most countries
- Provide an in-depth analysis of gender differences in financial literacy
- Look at East-West Germany
- Young and old women
- Look at other measures of financial literacy
- Self-assessed measures of financial literacy
- Financial advice: A substitute for financial literacy?

Work in progress

- SAMPLE: DNB Household Panel (DHS), online survey representative of Dutch-speaking households
- We include panel members who are household heads and their partners, age 18 and older
- DESIGN: Financial literacy questions asked twice
- First survey (May 2012): Financial literacy questions including a “Do not know” option
- Second survey (June /July 2012): Same questions without a “Do not know” option
- After each question in June/July ask for confidence in the answer

Our sample

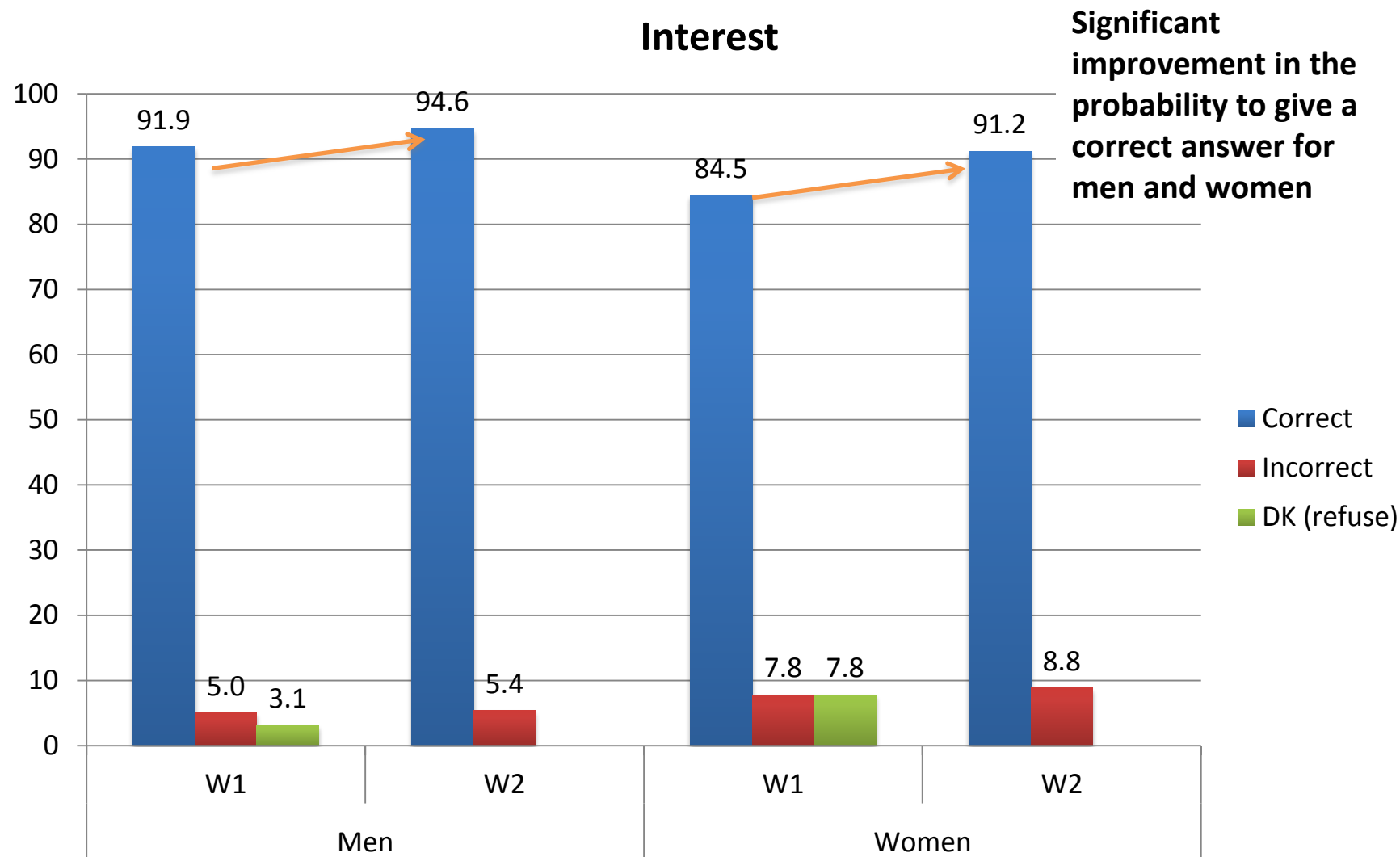
May wave: N= 1,748

June/July wave: N= 1,973

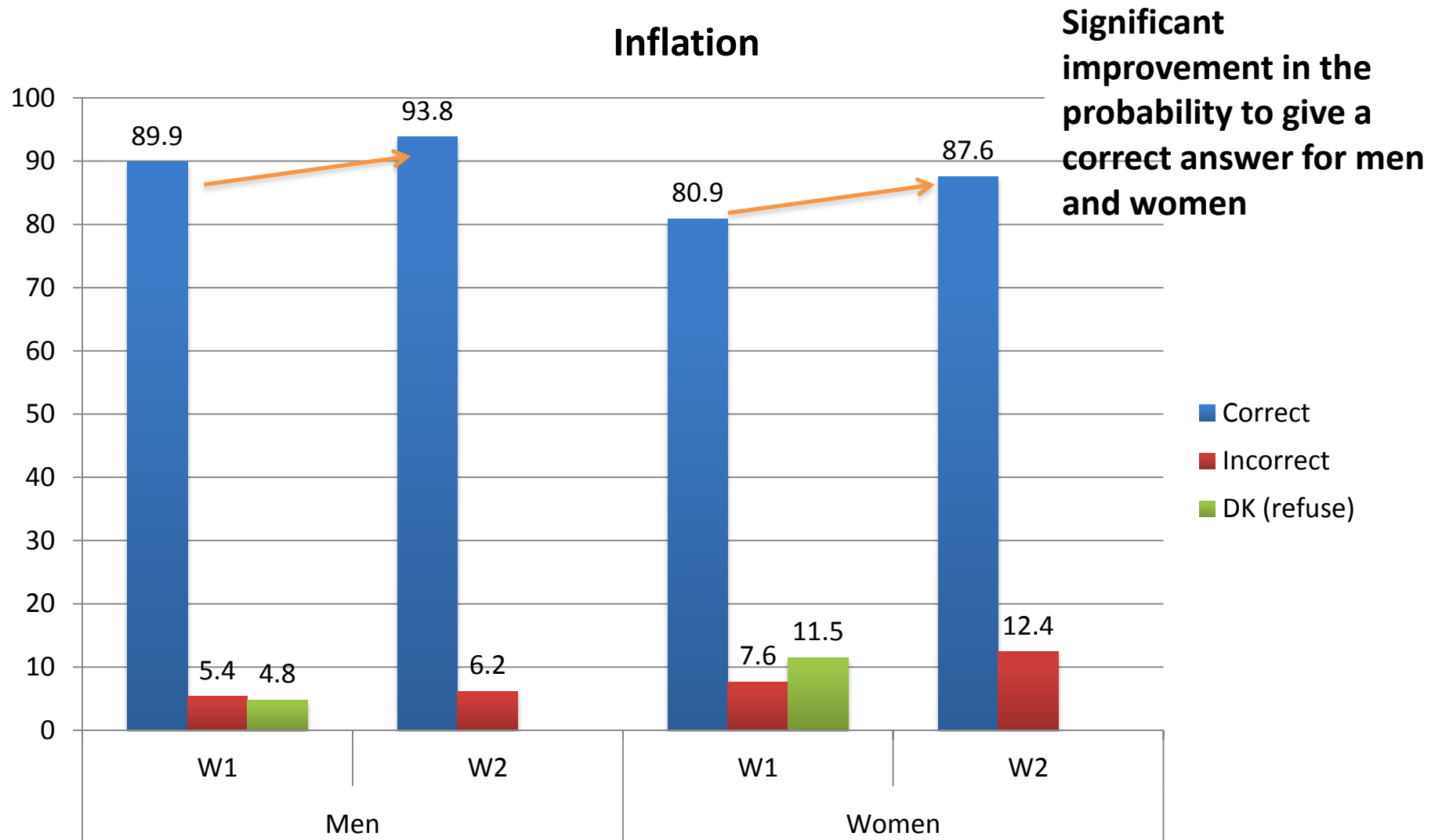
Sample for the analysis: complete questionnaire in both waves, N=1,528

- **Attrition:** No significant effects of gender or financial literacy on dropping out after May wave
- **Learning:** Answers to financial literacy do not differ significantly from participants in both waves.

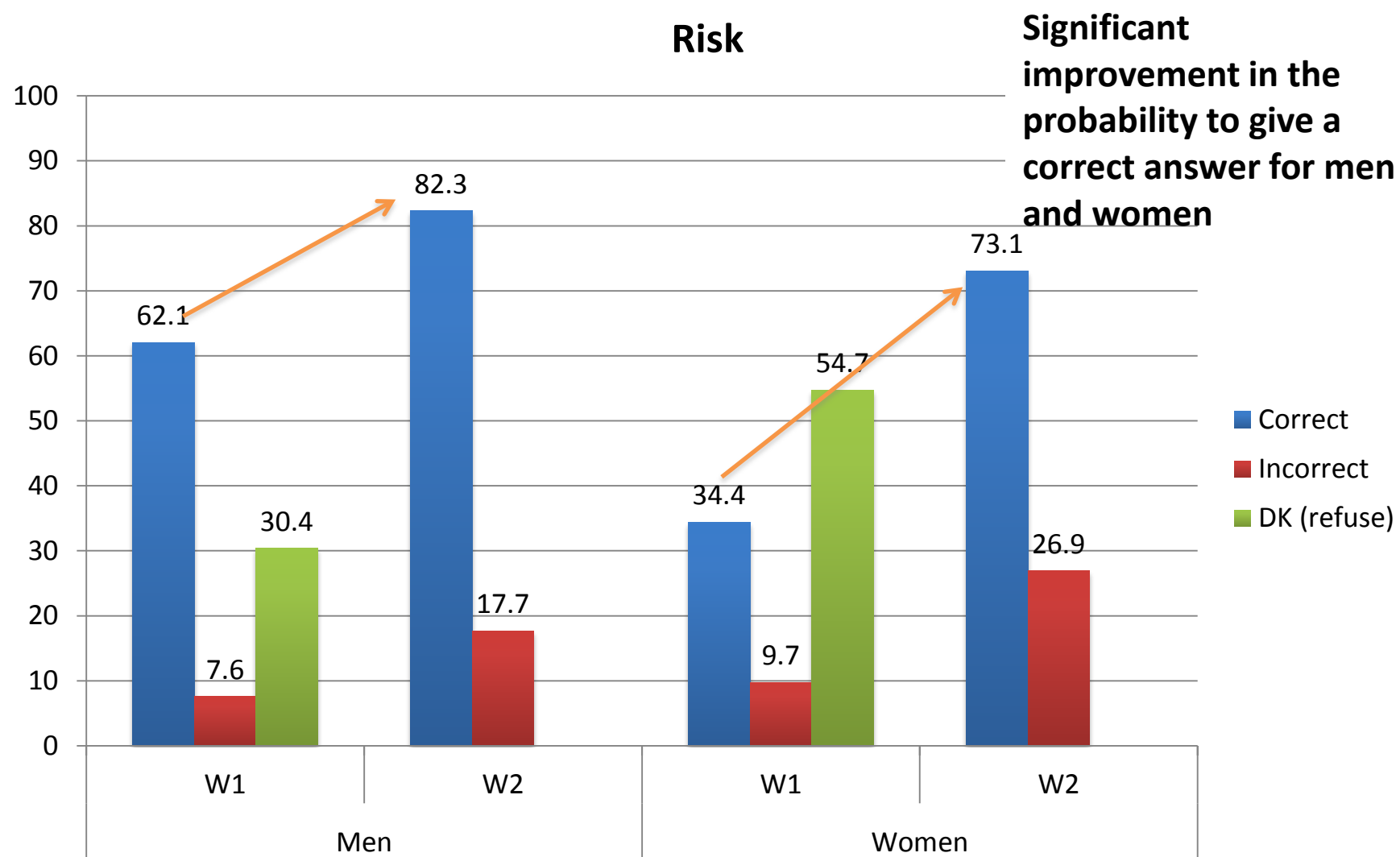
Answers waves 1 & 2, interest question, by gender



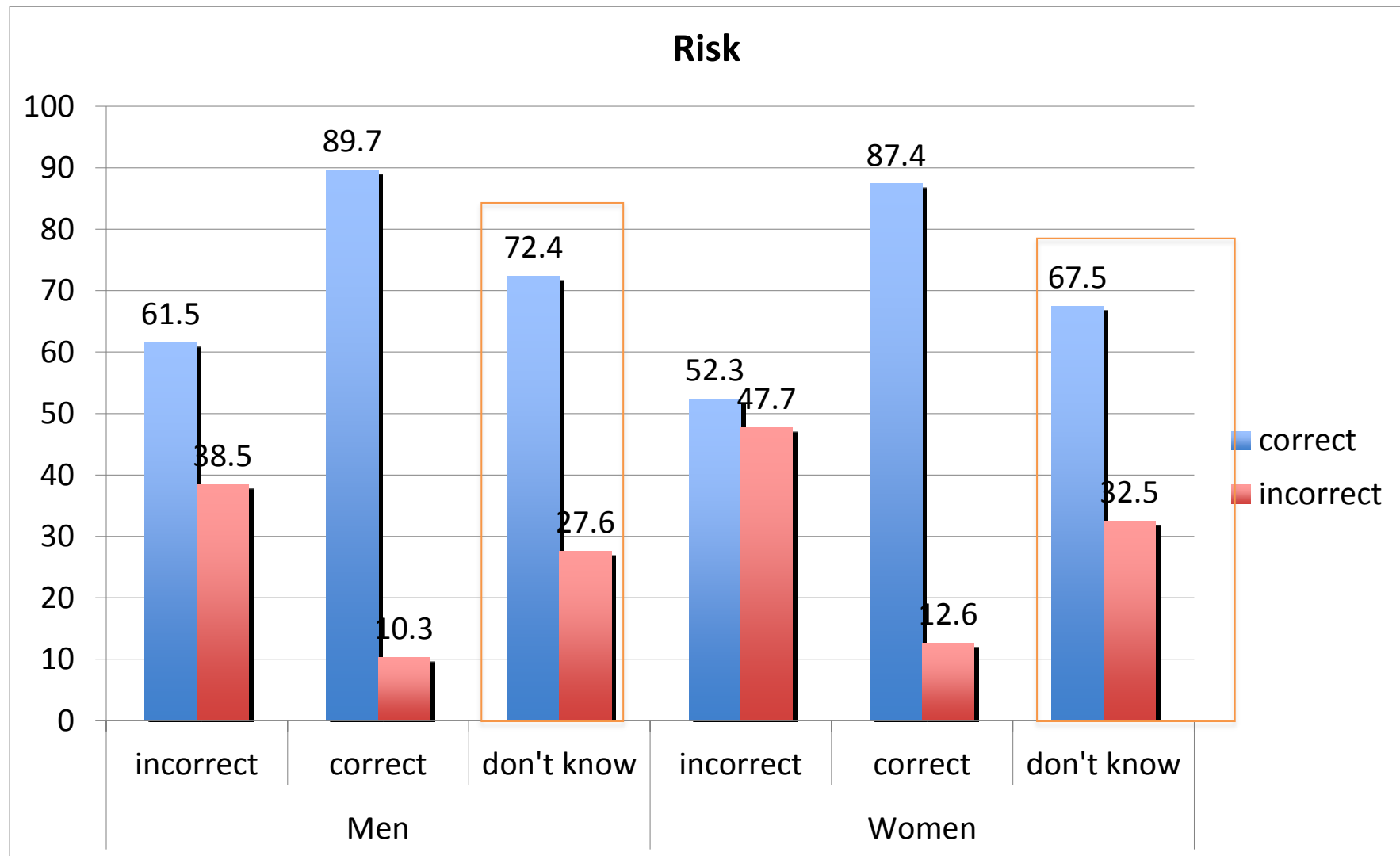
Answers waves 1 & 2, inflation question, by gender



Answers waves 1 & 2, risk question, by gender

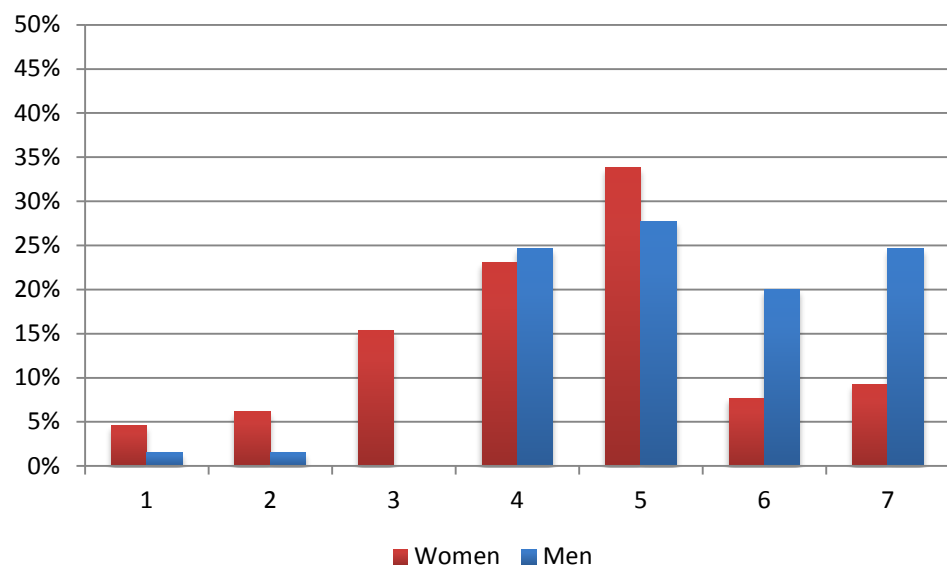


Answers in wave 2 conditional on answers in wave 1

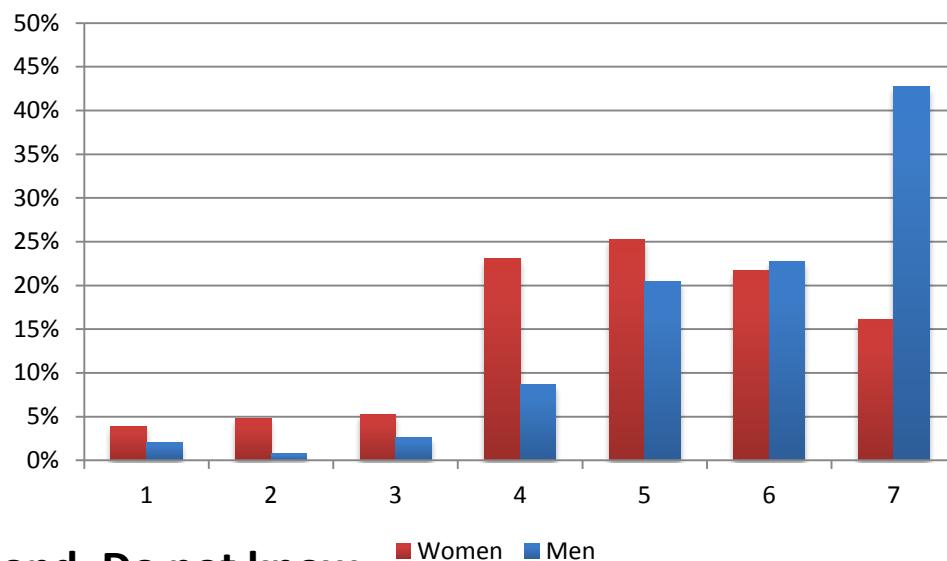


Confidence in wave 2 conditional on being correct, incorrect, or DK in wave 1. Risk diversification

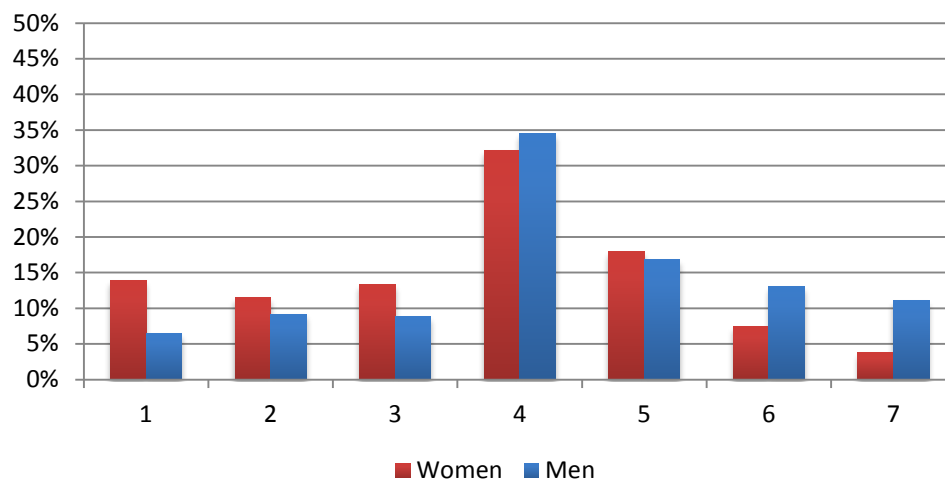
Confidence cond. Incorrect



Confidence cond. Correct



Confidence cond. Do not know



Gender and financial literacy between waves

Dependent variable = # of correct answers to finlit quest

	(1)	(2)	(3)	(4)
VARIABLES	July	May	July	May
Female	-0.253*** (0.0312)	-0.404*** (0.0393)	-0.196*** (0.0326)	-0.309*** (0.0399)
Constant	2.703*** (0.0198)	2.504*** (0.0261)	2.249*** (0.136)	1.709*** (0.176)
Other controls	no	no	yes	yes
Observations	1,528	1,528	1,528	1,528
R-squared	0.038	0.056	0.106	0.162
Robust standard errors in parentheses				
*** p<0.01, ** p<0.05, * p<0.1				

Financial literacy & stock market participation

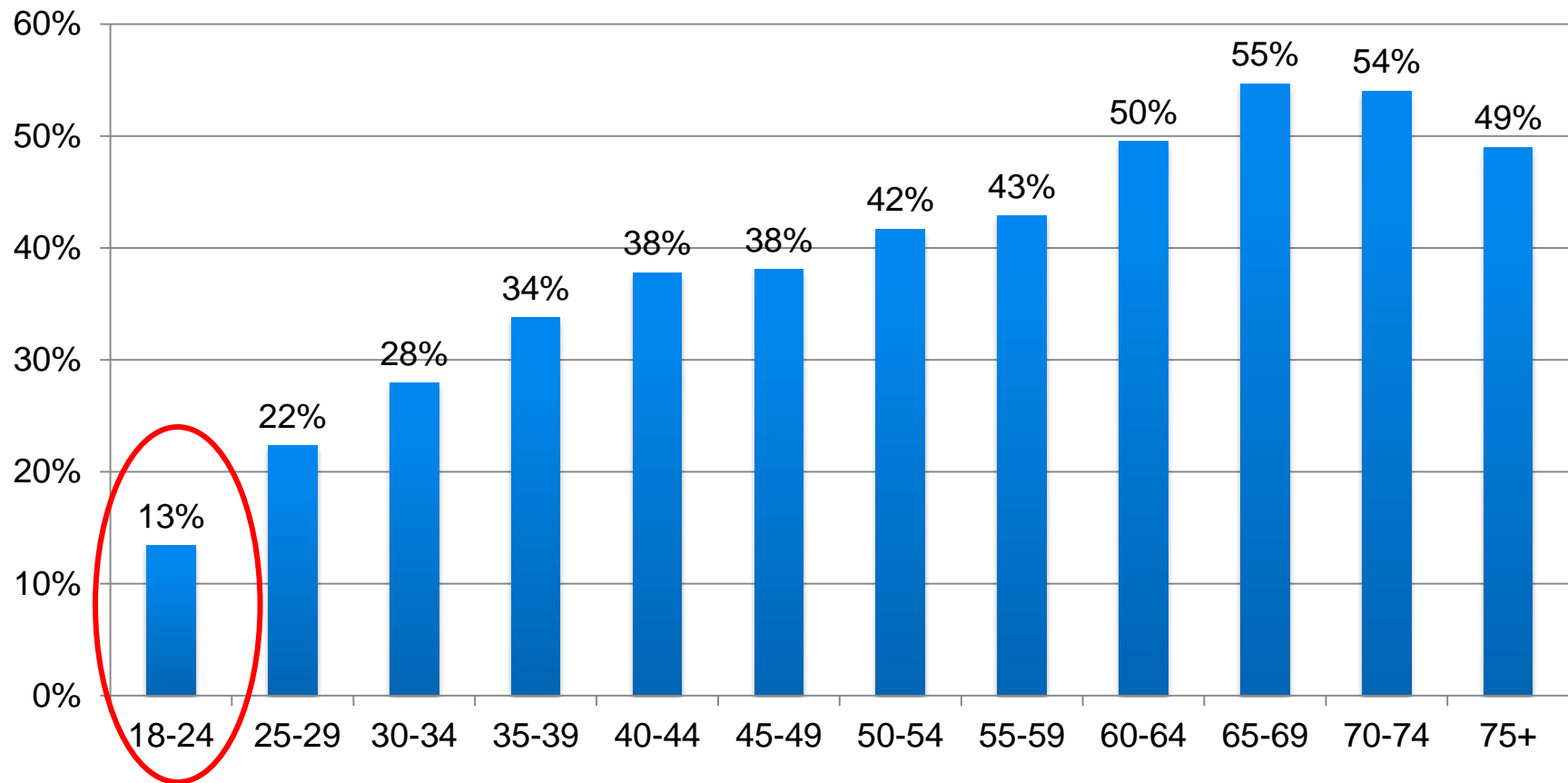
Financial literacy, gender and stock market participation			
VARIABLES	(1)	(2)	(3)
Financial literacy		0.0541***	0.0914***
		(0.00973)	(0.0105)
Female	-0.137***	-0.0729***	-0.0469**
	(0.0207)	(0.0213)	(0.0212)
Constant	0.339***	0.101	0.145*
	(0.0162)	(0.0732)	(0.0754)
Financial literacy measure	na	July	May
Other controls	no	yes	yes
Observations	1,528	1,528	1,528
R-squared	0.023	0.125	0.146
Robust standard errors in parentheses clustered at the household level			
*** p<0.01, ** p<0.05, * p<0.1			

Summary of findings so far

- Gender gap in financial literacy decreases but does not disappear when deleting the “Do not know” option
- Men and women responding “Do not know” have high likelihood of giving a correct answer, but more women said DK in the first place.
- Women are much less confident, even if they answer correctly.
- Confidence can explain a substantial part of the gender gap in financial literacy, but not all.
- Financial literacy and confidence are associated with financial decision making. They account for (part of) the gender gap in stock market participation

Financial knowledge among the young

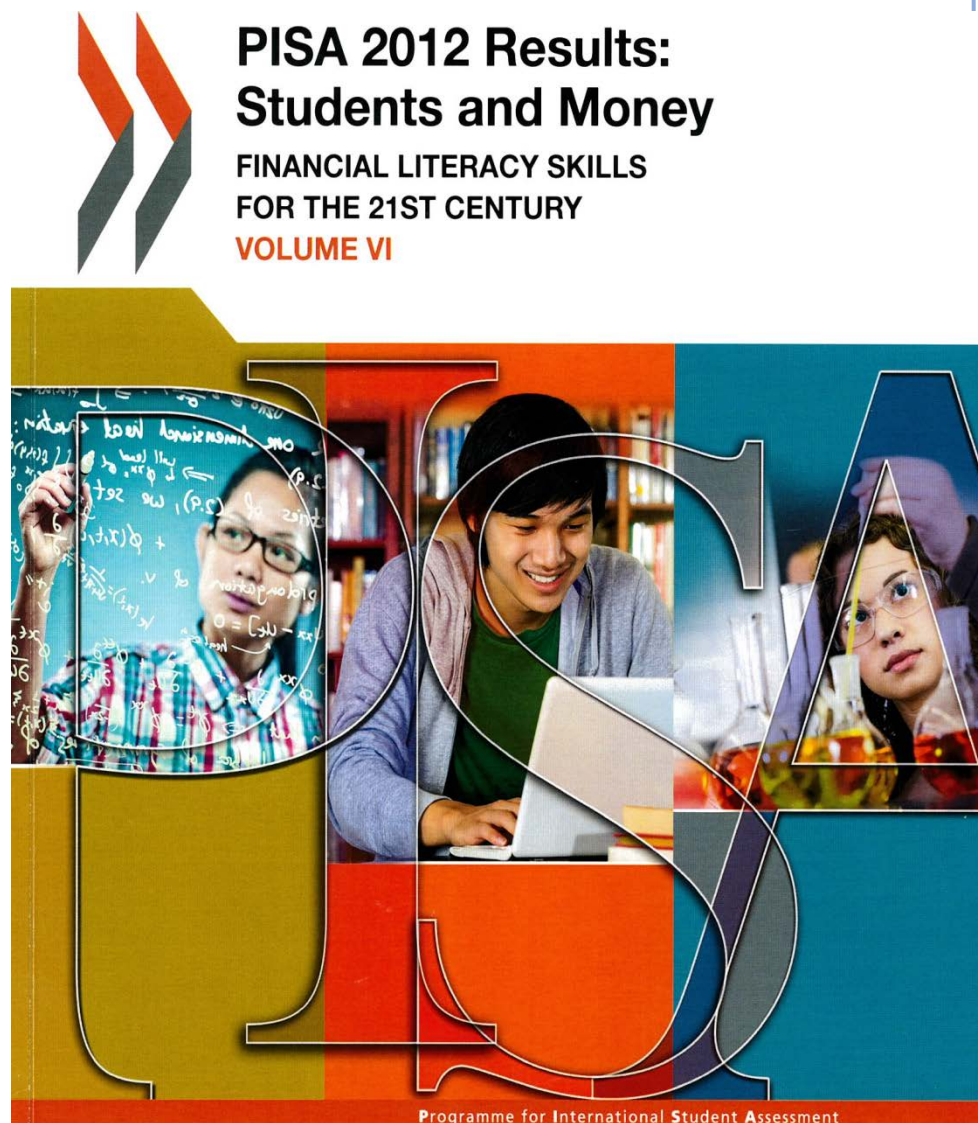
**Financial knowledge by age in the United States –
2012 US National Financial Capability Study
(% answering 3 questions correctly)**



New data for 15-year-olds around the world

We have important new data

- 2012 Programme for International Student Assessment (PISA)
- Measuring financial literacy among high school students



PISA Financial Literacy Assessment

A multiple-year project

- A group of experts was convened by the OECD to design the 2012 module on financial literacy
- They represented many countries and many stakeholders (treasury departments, central banks, regulators, practitioners, academics)
- Experts worked on the assessment for about two years

Mean score

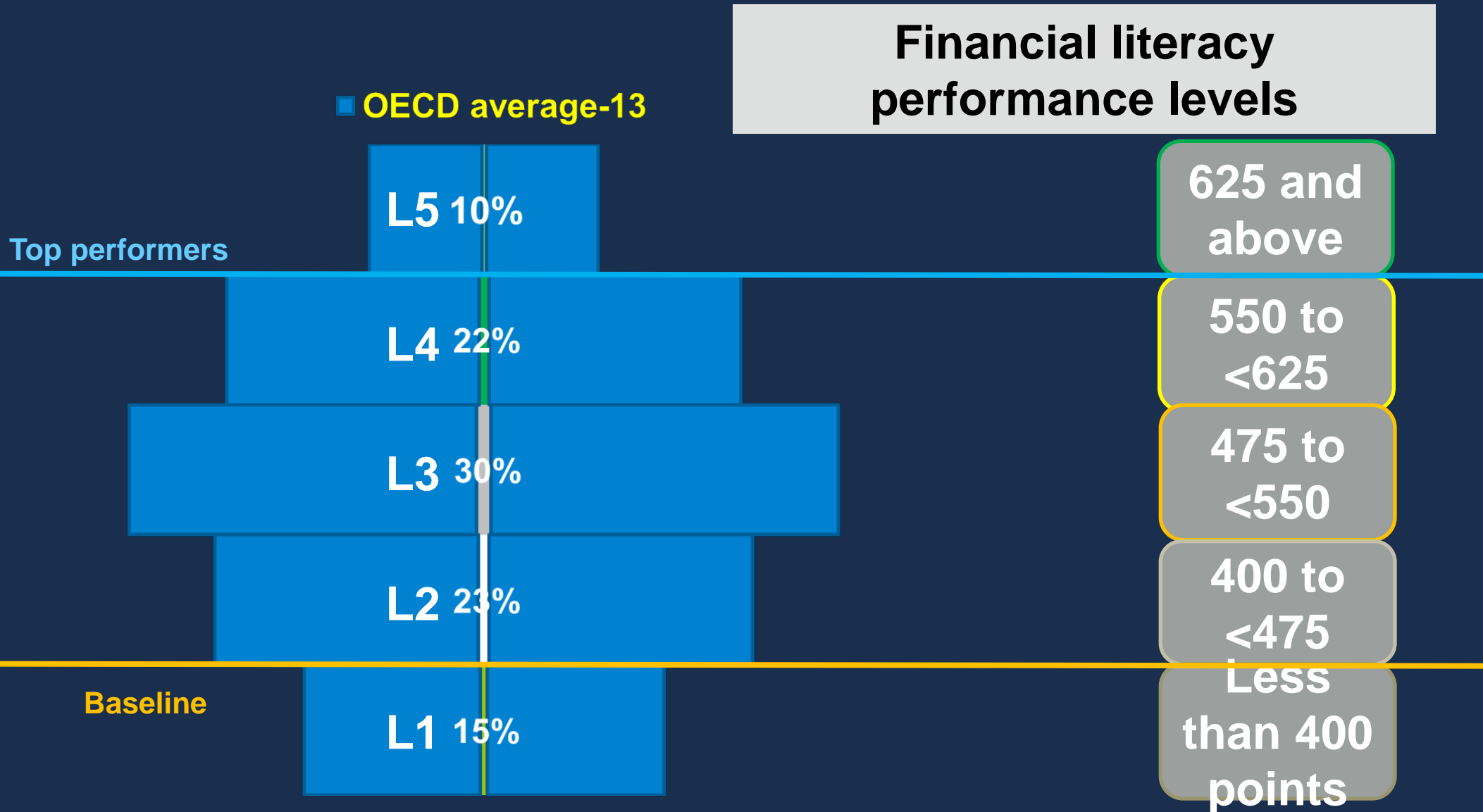
Strong performance in
financial literacy

Average performance
of 15-year-olds in
financial literacy

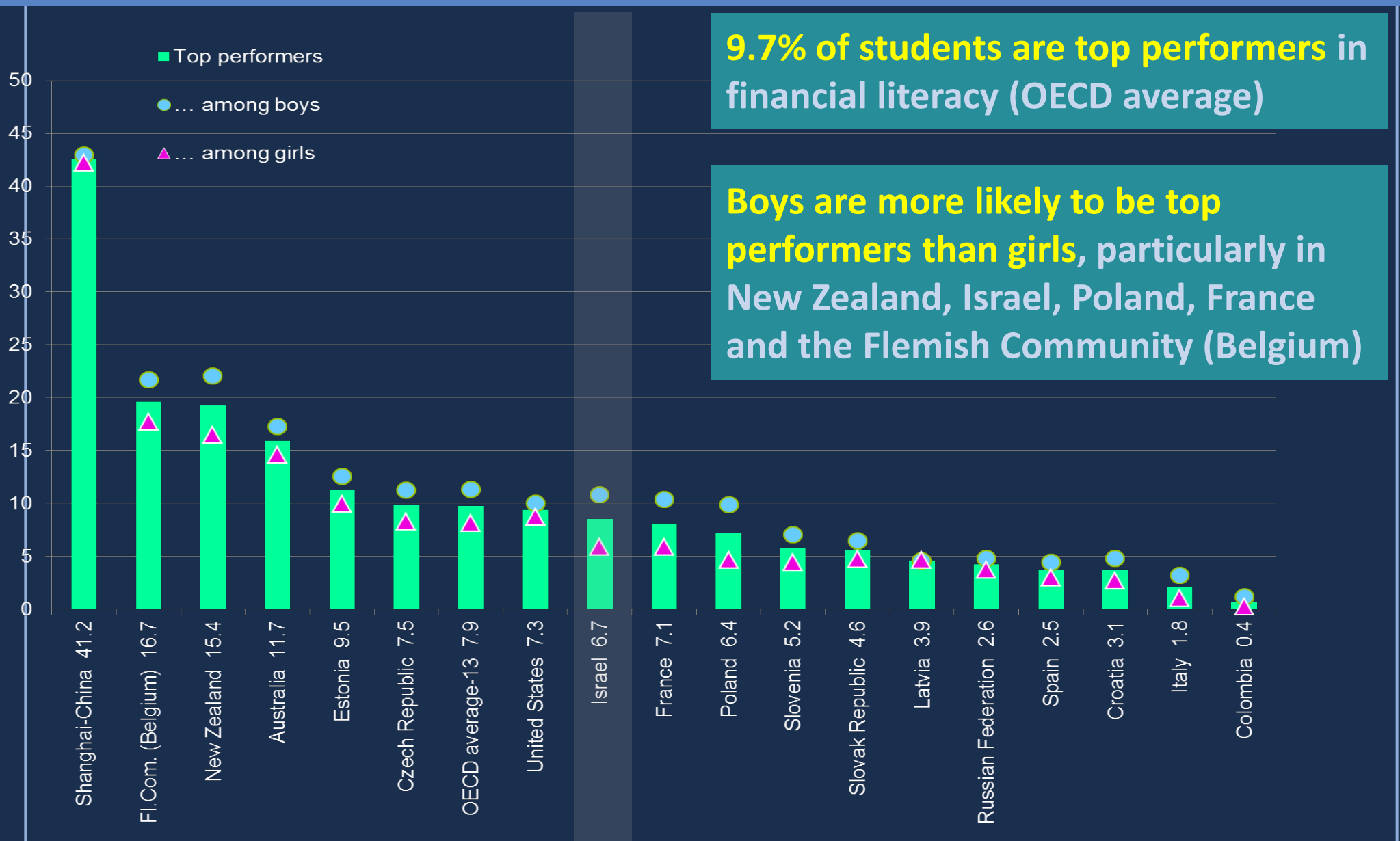
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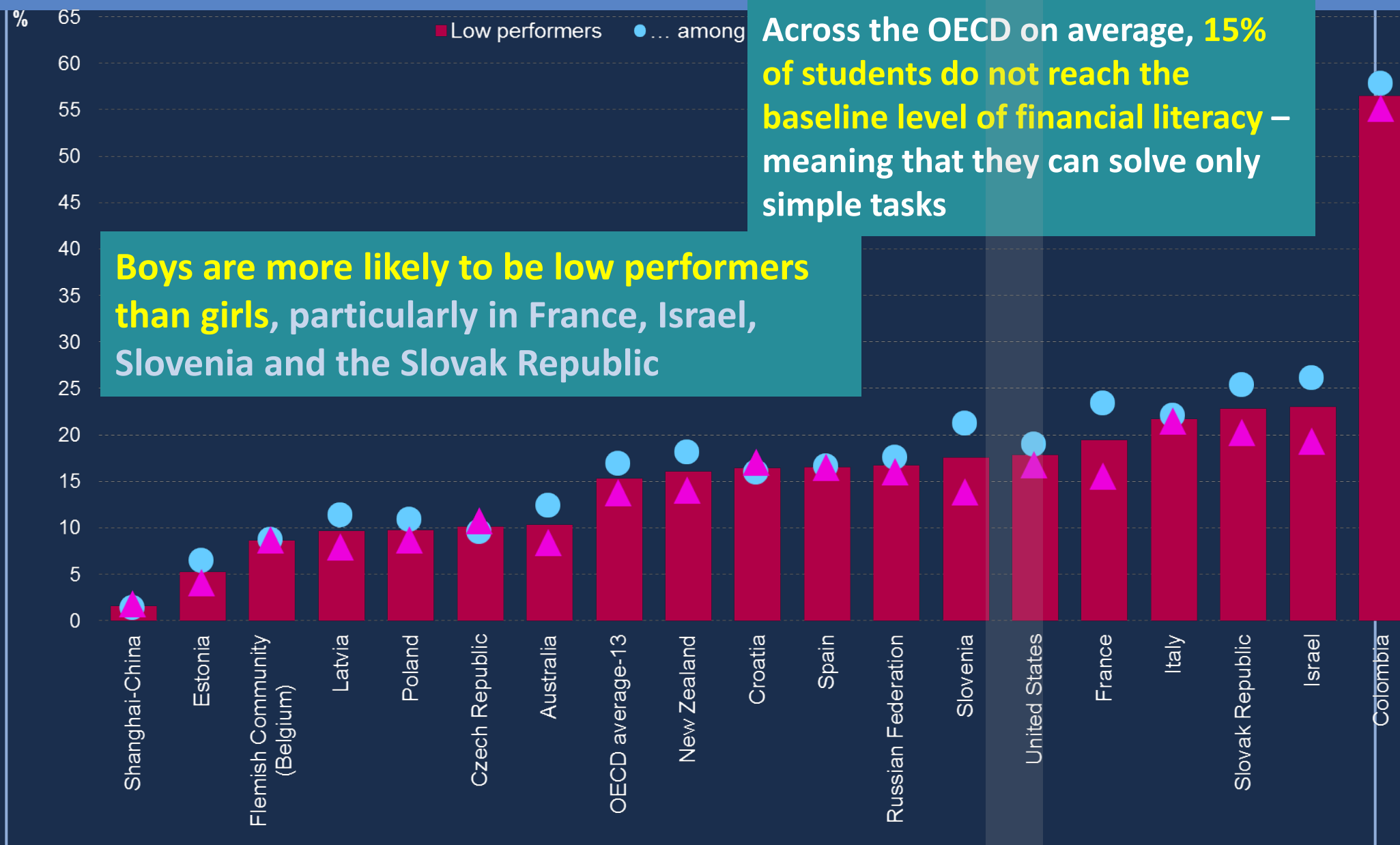
Distribution of student performance



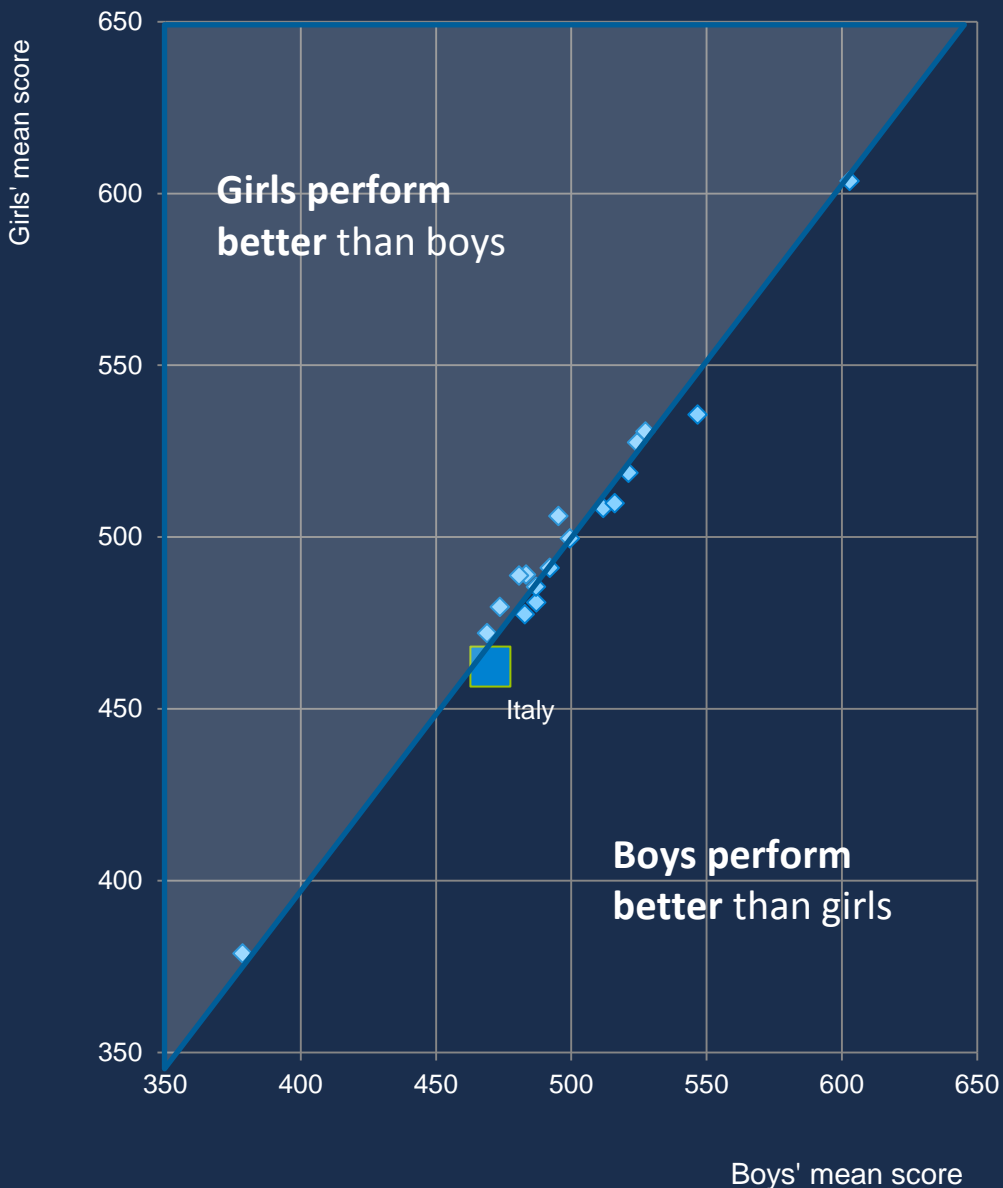
Top performers in financial literacy, by gender



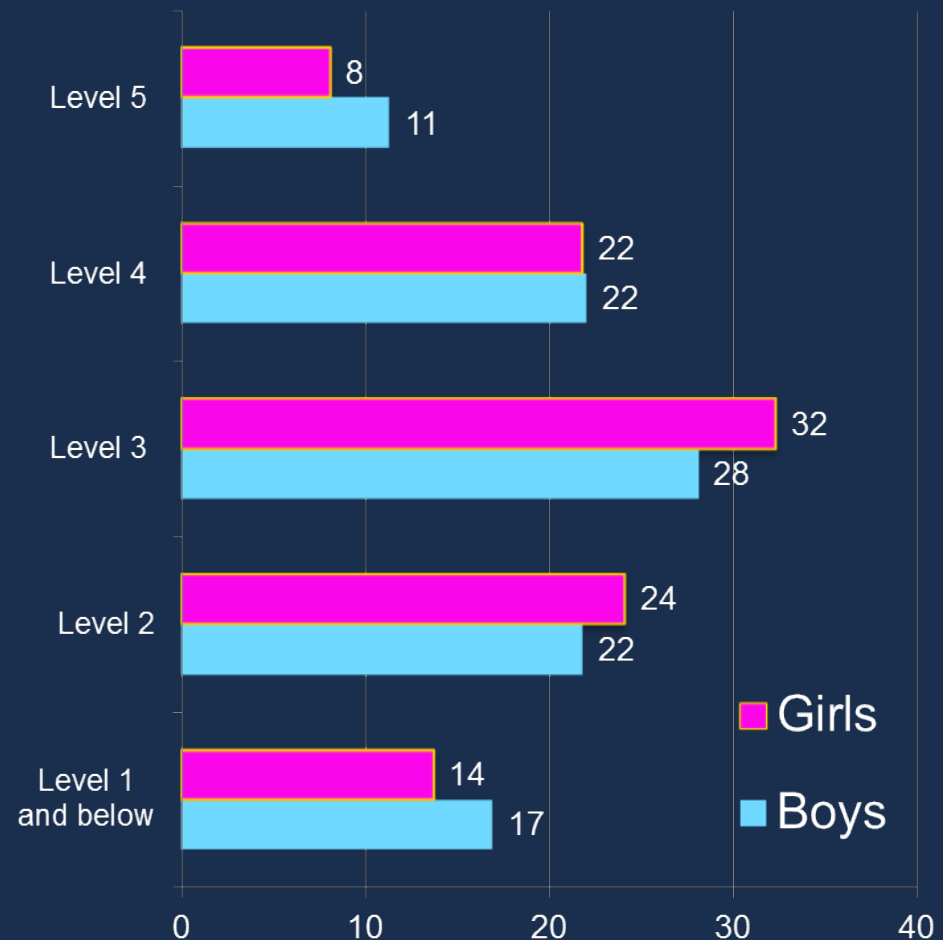
Percentage of low-performing students in financial literacy



Are there gender differences in financial literacy?



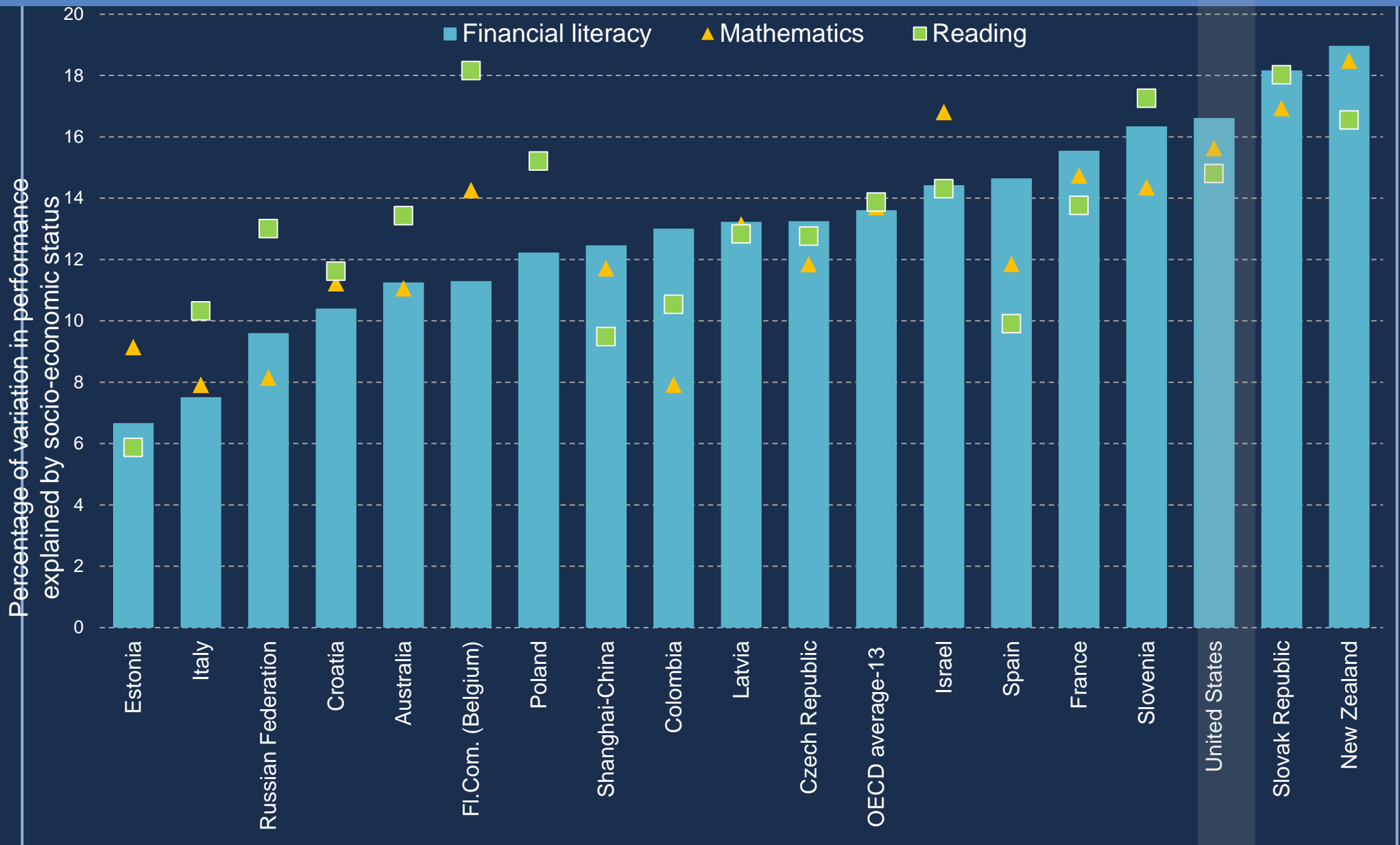
On average there are no gender differences (except in Italy) but fewer girls at top and bottom



Some important findings

- A lot of the variation in financial literacy is explained by socio-economic background (parent's income and education)
- We start unequal when it comes to financial literacy and inequality will only grow
- How to provide equality of opportunity early in life?

Relationship between socio-economic status and financial literacy, mathematics, and reading performance



Why should we care?

- Financial knowledge can be linked to behavior: saving, borrowing, investing, and retirement planning
- Financial knowledge is linked to wealth inequality
- Our paper shows that financial knowledge is one of the main determinants of wealth inequality

Wealth inequality

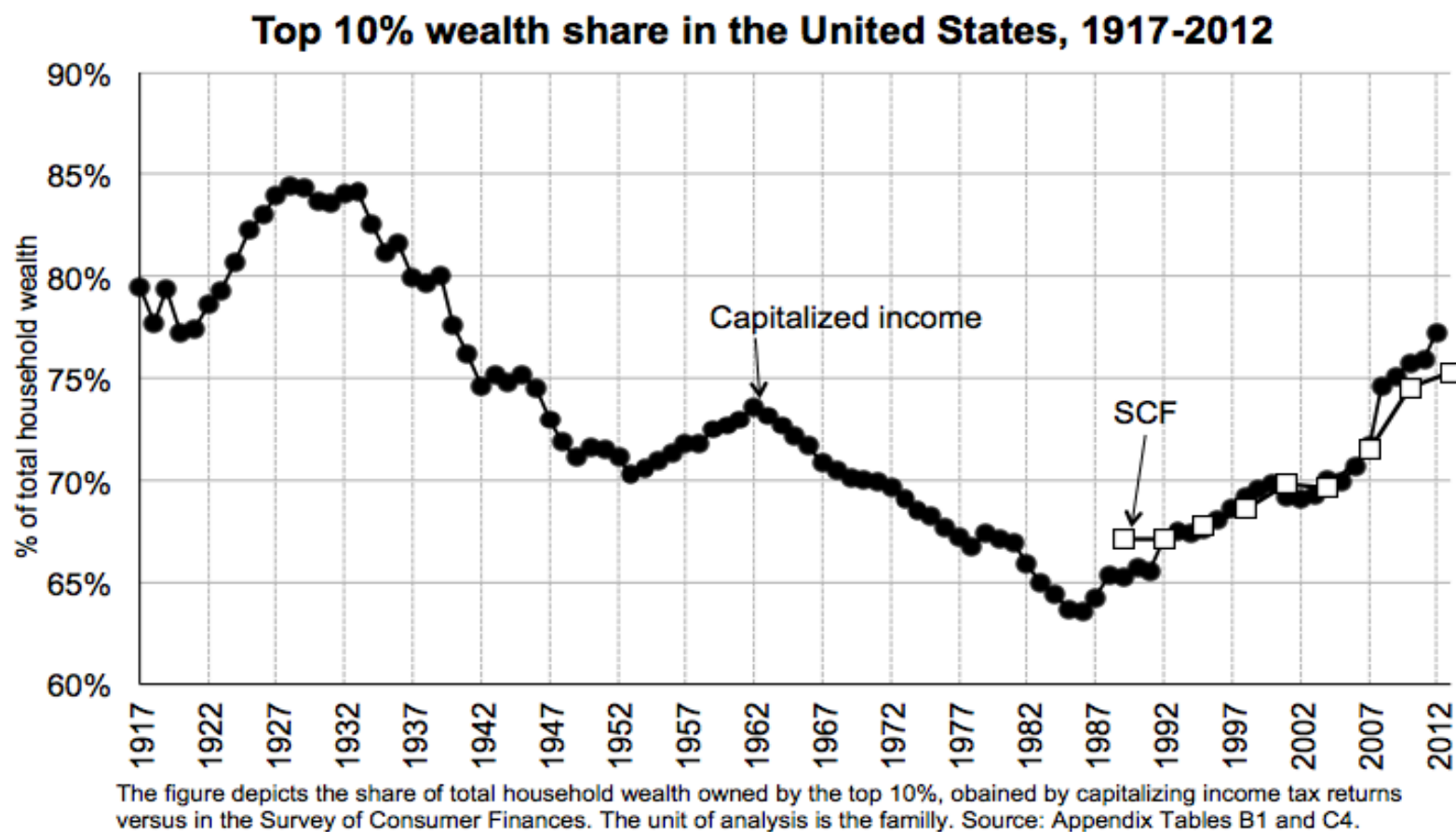


Figure 6: The Top 10% Wealth Share in the United States, 1917-2012

Source: Saez and Zucman (2014, NBER)

New work (Clark, Lusardi and Mitchell, 2014)

Financial knowledge & 401(k) investment performance

- **Use administrative data from large financial institution**
 - High quality data
- **Designed survey that had the 3 financial literacy questions**
 - Higher financial literacy than in the US population
- **Linked financial literacy to return on 401(k) investments**
 - Unique data
- **Those who are more financially literate earn 130 basis points more on their portfolio (adjusted for risk)**
 - Similar evidence is emerging in other papers

A new model incorporating financial literacy

Assessing how financial knowledge impacts wealth inequality is a hard task

Need a (new) model of saving that incorporates financial knowledge

The model needs to incorporate realistic features of the economy, such as:

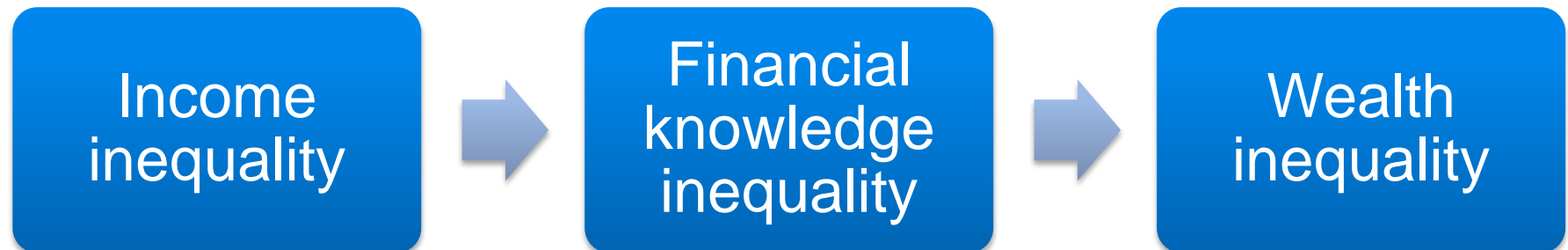
- Many sources of risk
- Borrowing constraints
- Inequality in wages

Questions we can address

Once we have such a model, it is possible to

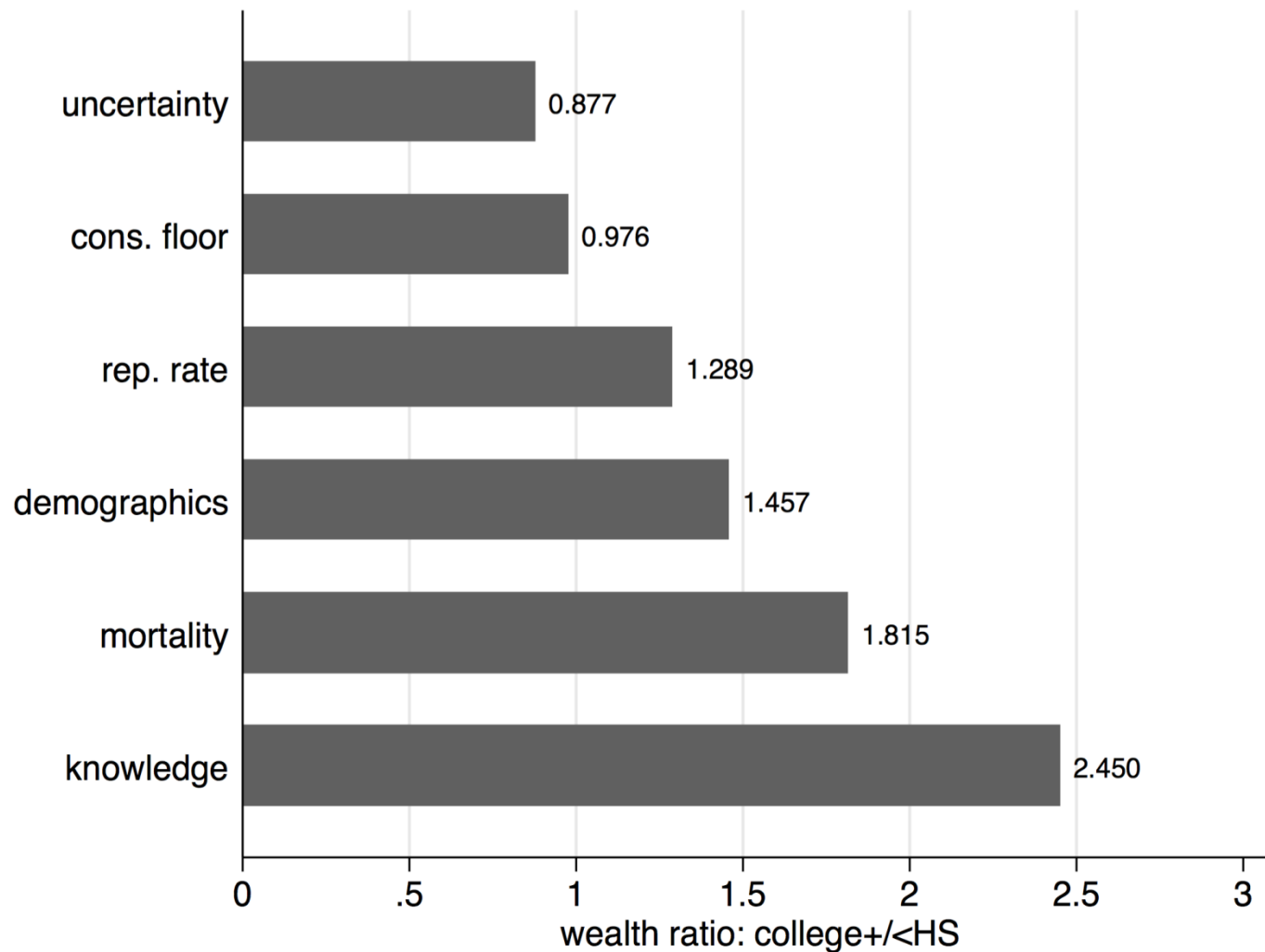
- Calculate the share of wealth inequality that is due to financial knowledge
- Understand the behavior of financial knowledge over time
- Assess whether policies or programs improve well-being; for example, what are the effects of adding financial literacy programs in school?

Mechanics



**Incentives to save raise the rate of
return on saving through financial
knowledge accumulation**

Fin. knowledge and wealth inequality



Summary of findings

- Many reasons to save but the most important engine of wealth inequality may be financial knowledge
- From 30 to 40% of wealth inequality can be attributed to financial knowledge
- Very important to start equal at the beginning of working life: Add financial literacy in school?

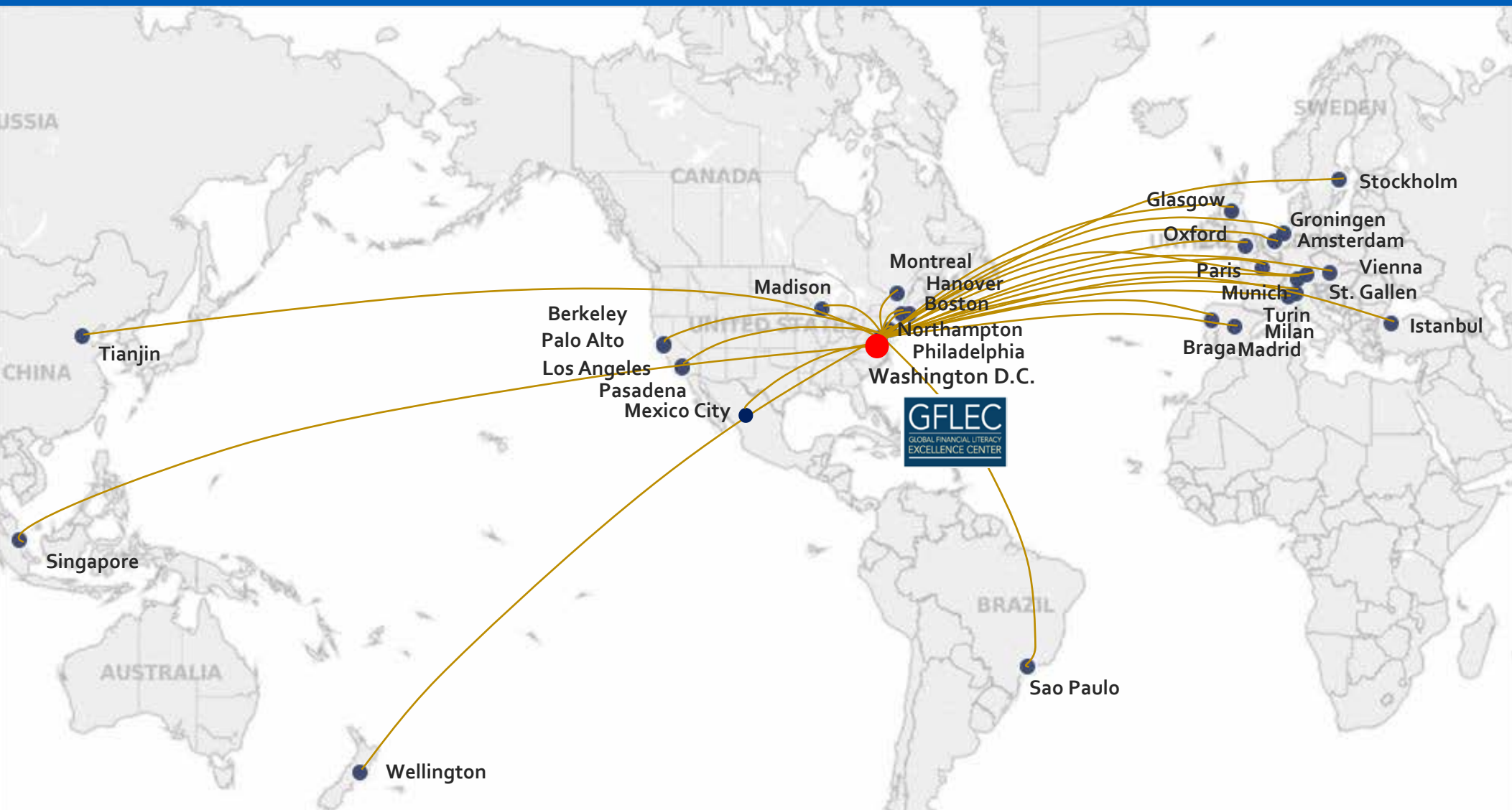
Use framework to study effects of adding fin. literacy in schools

- Increase the endowment of financial knowledge for everyone
- We find large welfare benefits: High school dropouts would need 82% more initial wealth to make them as well off as with higher starting values of financial literacy

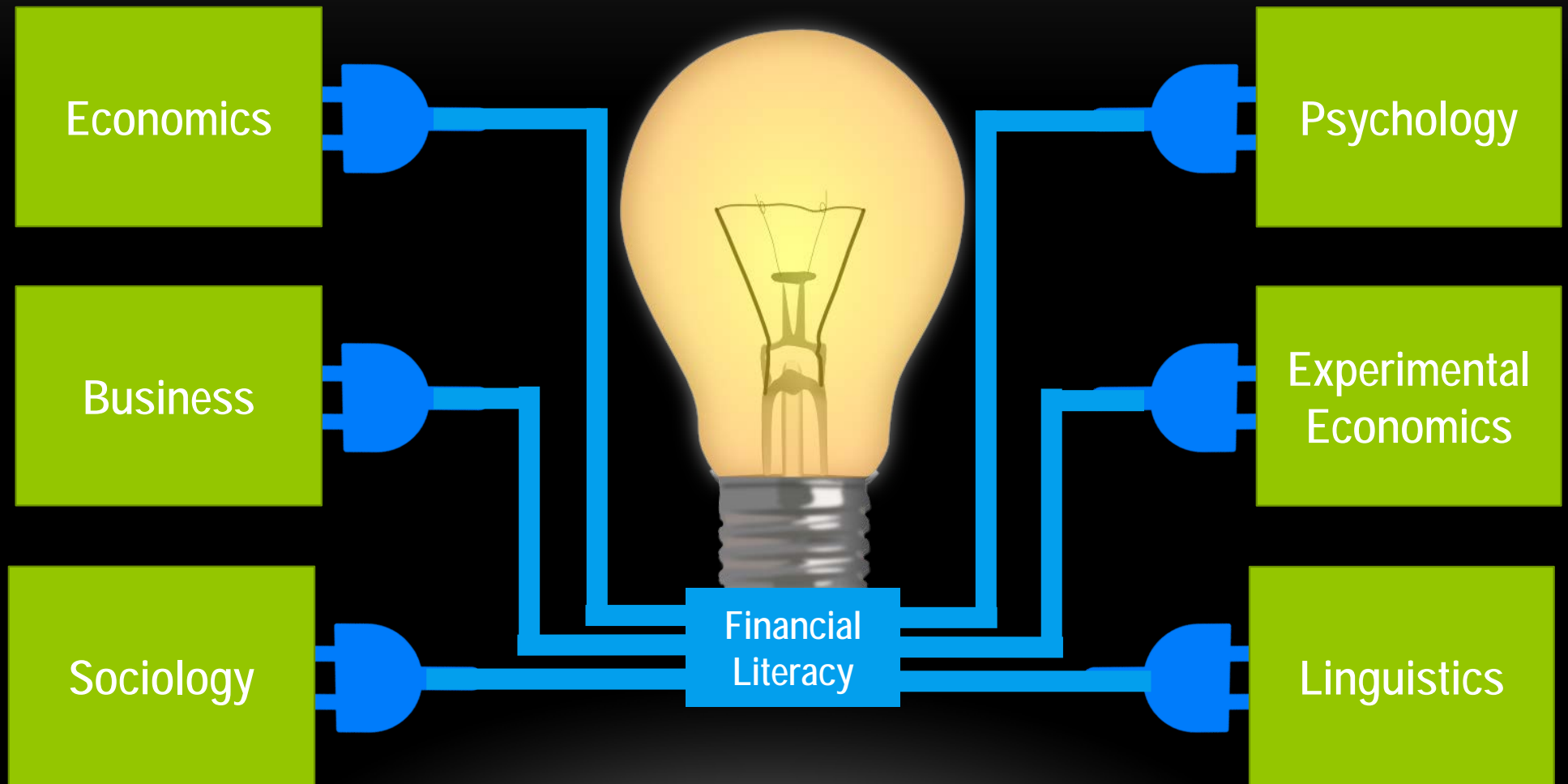
Final considerations

- Income and wealth inequality have risen
- Financial knowledge is an important mechanism in the transmission of income to wealth inequality
- Financial education provides welfare benefits, particularly in a world where responsibility for retirement savings is shifted to workers

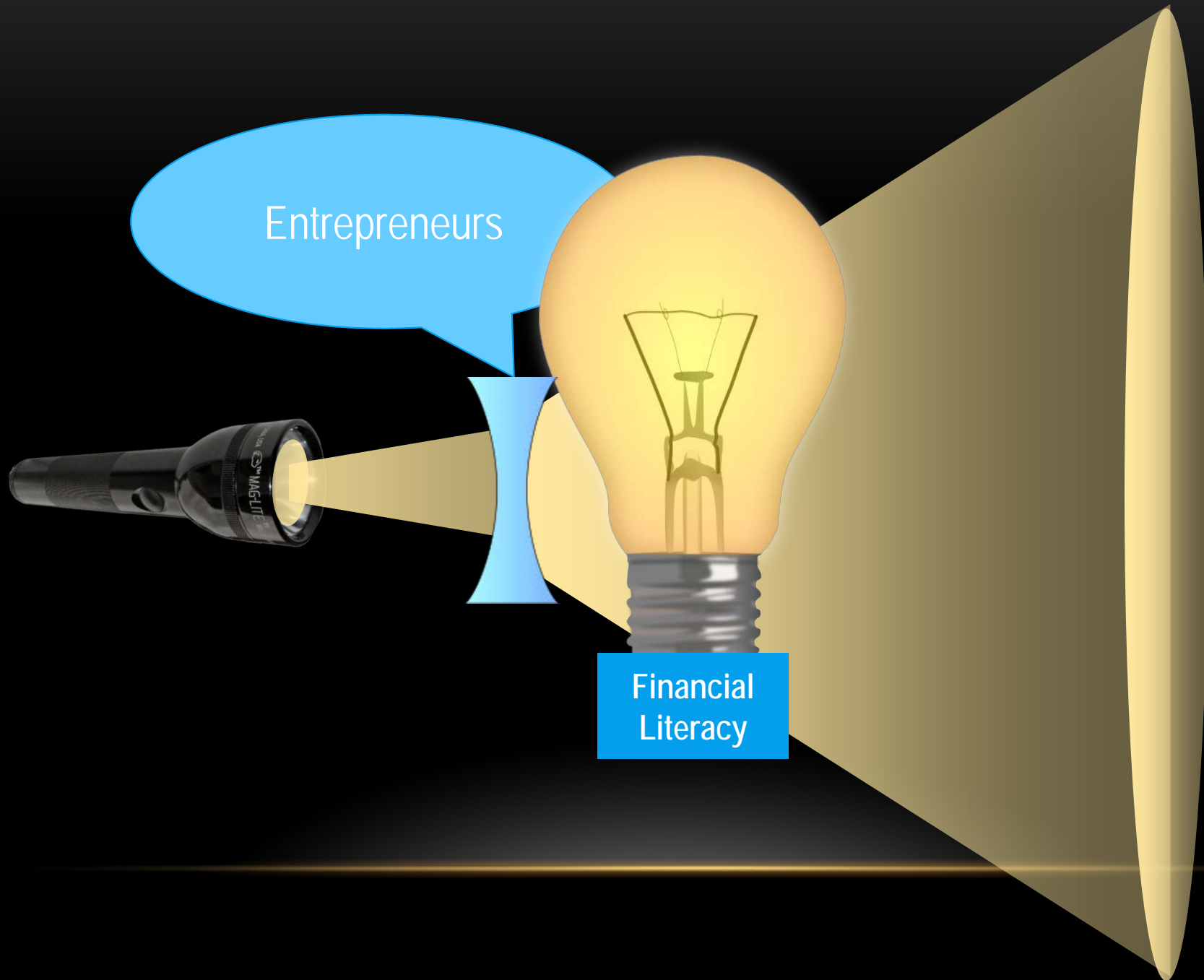
GFLEC's global network: Ongoing projects around the world



Our approach is multidisciplinary



Maximizing our potential through entrepreneurship



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Thank you!

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