

# **Financial Education and Investor Behavior Conference – Rio, December 8, 2015**



## **The Importance of Financial Literacy and the Effectiveness of Financial Education**

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# **Financial Literacy: The best line of defense**

**“Well-informed consumers, who can serve as their own advocates, are one of the best lines of defense against the proliferation of financial products and services that are unsuitable, unnecessarily costly, or abusive.”**

**—*Ben Bernanke, Former Fed Chairman***

# Ingredients to financial decision-making

## Many factors play a role in decision-making

We all make many and consequential financial decisions

➤ **Preferences, lifetime resources & risk**

- Traditional economic models

➤ **Choice architecture**

- Emphasized by behavioral economists

➤ **Brain and psychology**

- Biases

➤ **Financial literacy**

- How much people know



# What is financial literacy?

*“Financial literacy is knowledge and understanding of financial concepts and risks, and the skills, motivation and confidence to apply such knowledge and understanding in order to make effective decisions across a range of financial contexts, to improve the financial well-being of individuals and society, and to enable participation in economic life.”*



# PISA 2012 Results: Students and Money

FINANCIAL LITERACY SKILLS  
FOR THE 21ST CENTURY

VOLUME VI



# Financial literacy: An essential skill

## Why essential

1. Individuals make many financial decisions, and these **decisions are inter-related**
2. Decisions are made **starting at a young age**, ex: investment in education (and how to pay for it)
3. There is a lot of **heterogeneity** in individual behavior; one size does not fit all
4. The final objective is **well-being**, not a single behavior

# The economic importance of financial literacy

## A simulation exercise

1. Consider one financial decision
2. Examine the effects of financial literacy
3. Add this effect into a model of behavior
4. Calculate whether and how much financial literacy matters

# Case study: investment performance

## Financial knowledge & 401(k) investment performance

- **Use administrative data from the Federal Reserve Board**
  - High quality data
- **Designed short survey on financial literacy and administered to employees**
  - Higher financial literacy than in the US population
- **Linked financial literacy to return on 401(k) investments**
  - Very detailed information on portfolio choice
- **Those who are more financially literate earn a lot more on their portfolio (adjusted for risk)**
  - Similar evidence is emerging in other papers
  - Related to the work of Piketty

# New paper: “Optimal Financial Knowledge and Wealth Inequality”

- Take a traditional saving model and add finlit to it
- Financial literacy gives access to high-return assets
- People decide whether and how much to save and to invest in financial literacy
- Simulate an economic environment similar to structure of the economy (ex: risk, government incentives to save)
- Does it matter? How much of the differences in wealth can be explained by financial literacy?

# Wealth inequality

- Financial literacy is an important determinant of wealth inequality
- Our paper shows that **30-40%** of wealth inequality can be attributed to financial knowledge



# Given its importance, who is financially literate?

## Large amount of research

1. New data, thanks in particular to OECD-INFE
  - Including PISA data starting from 2012 (cover 15-year olds across countries)
2. Some data at the country level
3. Possibility to do extensive international comparison now with the S&P Global Financial Literacy Survey
4. Many researchers contributing to the emerging field of financial literacy/personal finance
  - Research committee of OECD-INFE

# Financial Literacy around the World (FLAT World)

Evidence from 14 countries:

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



# New data on financial literacy around the world



GALLUP



**The data, designed in collaboration with the World Bank and GFLEC, was released on November 18, 2015**

# The S&P Global Financial Literacy Survey



In 2014, Gallup interviewed adults (age 15 and older) in **more than 140 countries** around the world about their level of financial literacy.

**The survey covers four topics:**

- **Numeracy**
- **Interest compounding**
- **Inflation**
- **Risk diversification**

# Financial literacy: What is the evidence?

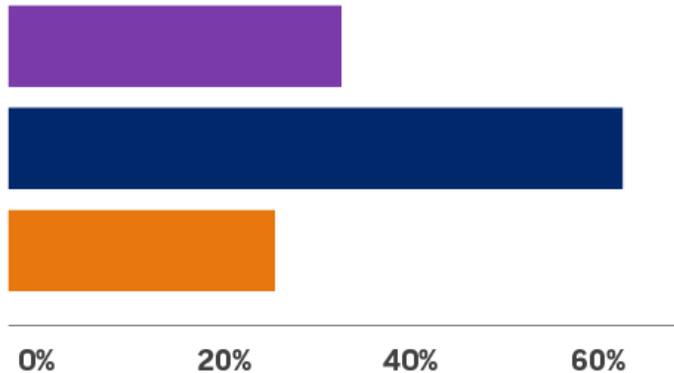
## Financial illiteracy at the global level

- Financial illiteracy is widespread
  - Even in countries with well developed financial markets or high per-capita GDP
- People do not possess knowledge of fundamental financial concepts
  - Lack of knowledge even among “investors”
- Risk diversification is what people know the least
  - Large differences across countries

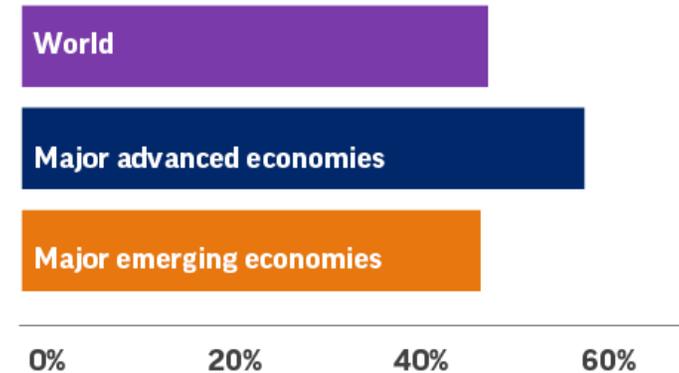
# Financial literacy around the world: Which topics do people know?

% of adults who know the topic

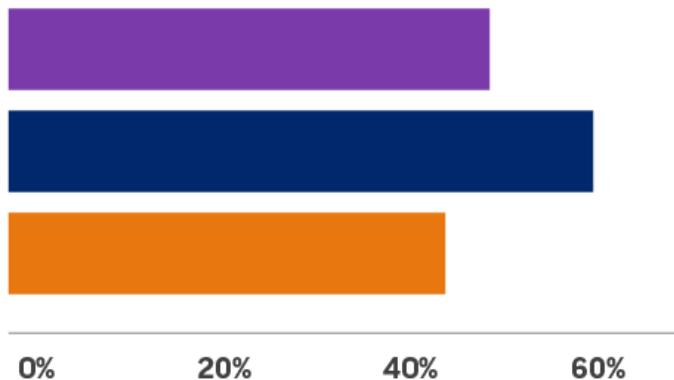
RISK DIVERSIFICATION



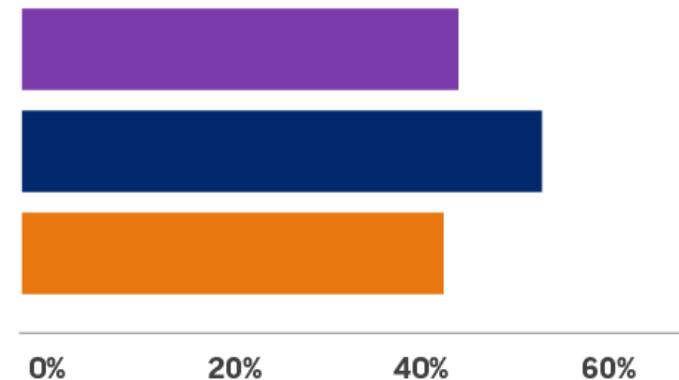
NUMERACY (INTEREST)



INFLATION



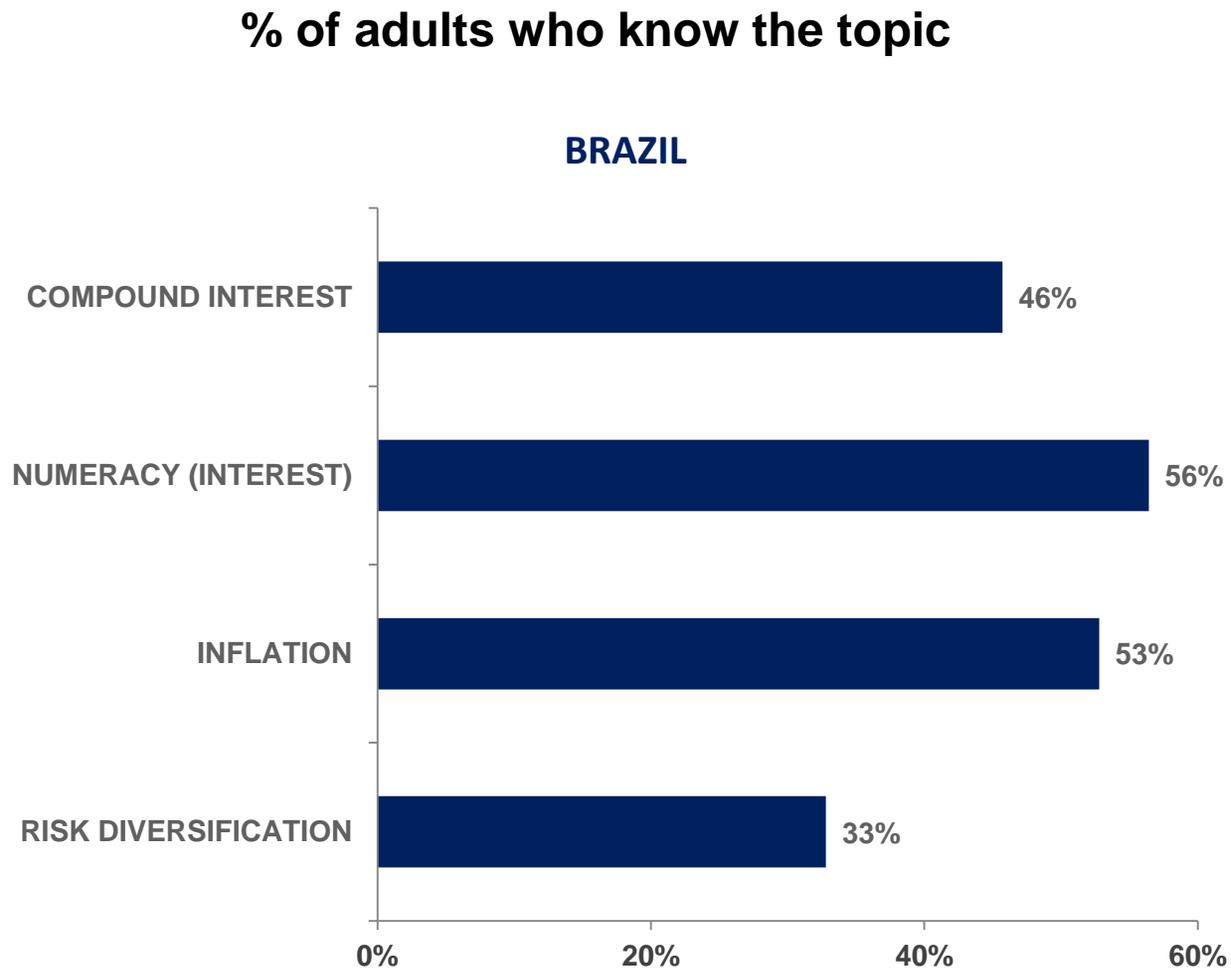
COMPOUND INTEREST



Source: S&P Global FinLit Survey

# Evidence from Brazil

Source: S&P Global Financial Literacy Survey



# Who are the most vulnerable groups?

## Financial literacy is low

### ➤ Among the young

- Financial literacy is quite low, even when it is the highest in the population

### ➤ Among the old

- There is also mismatch between self-assessed and actual knowledge

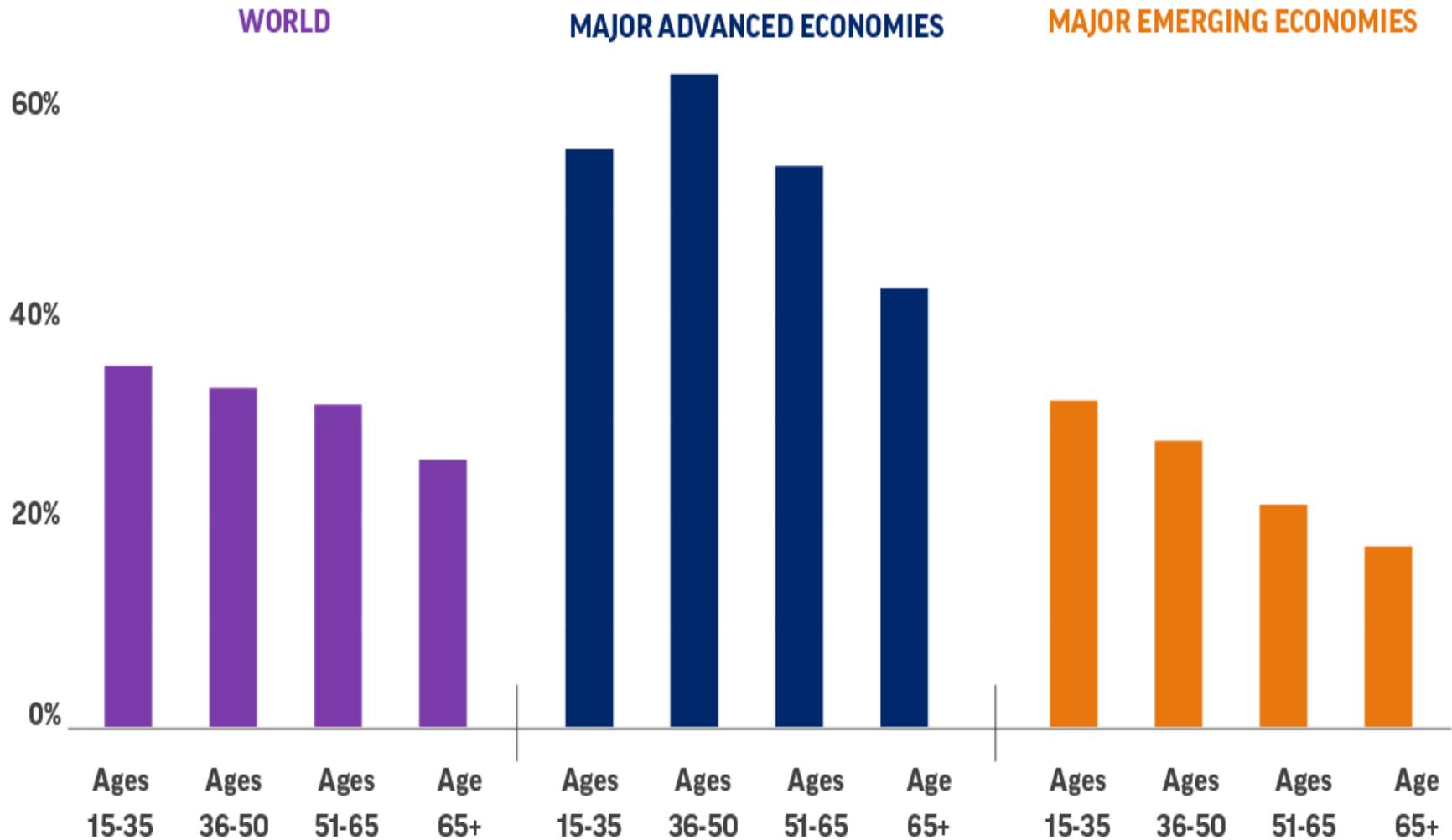
### ➤ Among those with low income and education

- This is true in all countries

### ➤ Among women

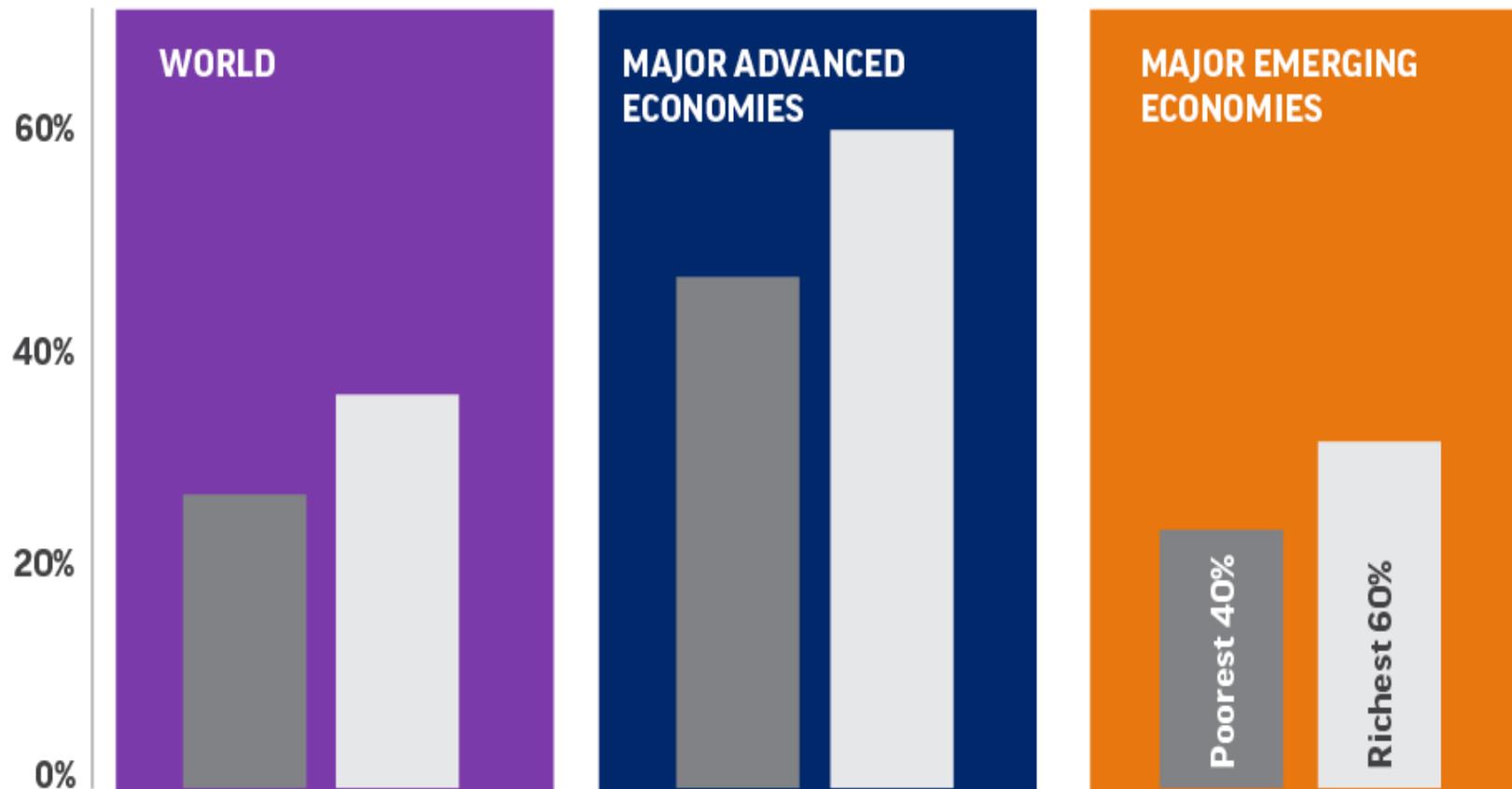
- Women are an ideal group to target

# Financial literacy over the life-cycle



Source: S&P Global FinLit Survey

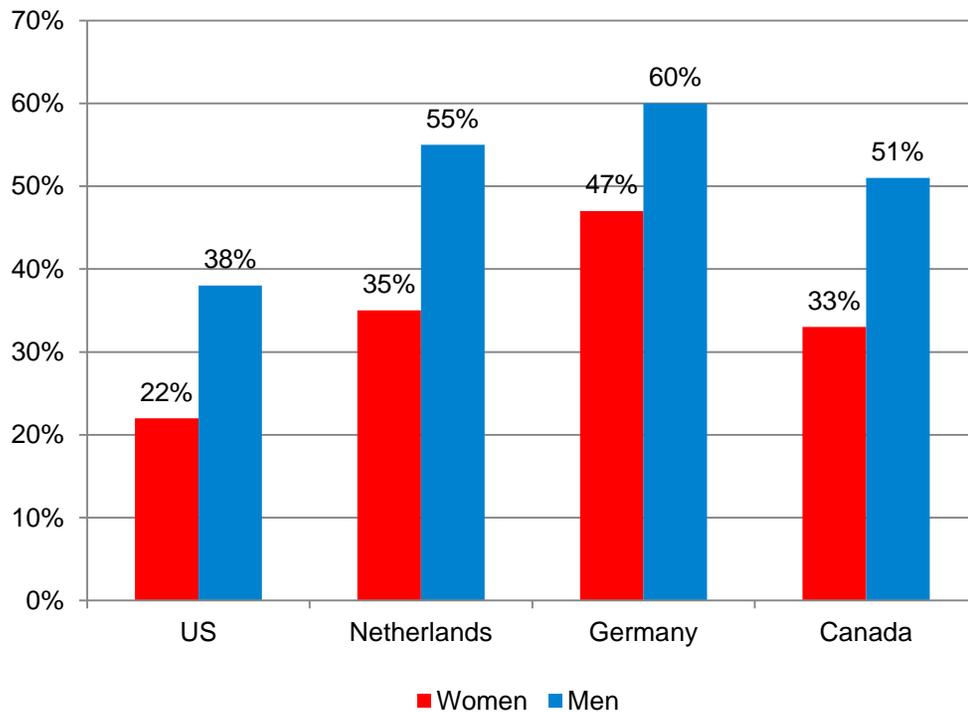
# Financial literacy and income



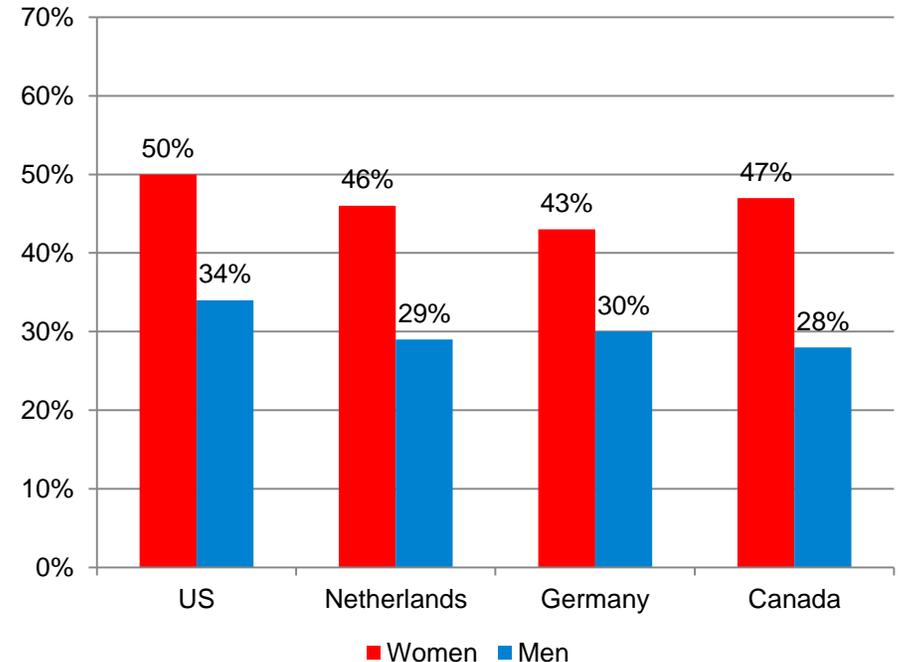
- **Of adults in the richest 60% of households in the major emerging economies, 31% are financially literate, against 23% of adults in the poorest 40% of households. Source: S&P Global FinLit Survey**

# Finlit among women: FLAT World

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

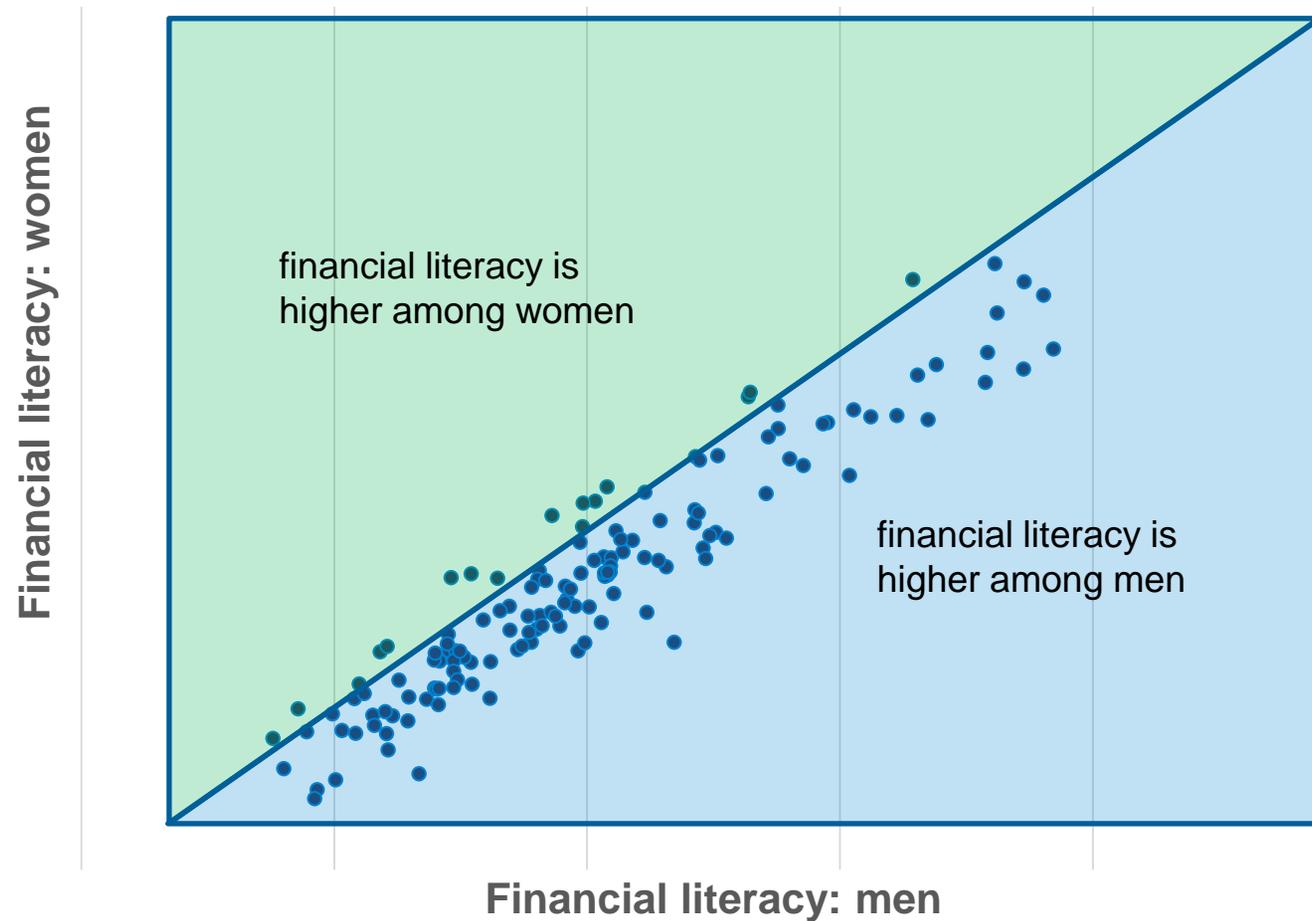


**At least one "don't know"  
answer, by gender**



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

# Gender differences in financial literacy are everywhere



**Women are more likely to answer “I do not know”**  
**Source: S&P Global FinLit Survey**

# Improving the effectiveness of financial education

## General guidelines

- **Evidence-based programs**
  - Much research exist to inform program design
- **The cure has to be adequate to the disease**
  - If addressing illiteracy, need for large and scalable programs
- **Targeted programs**
  - Population sub-groups are very different
- **Evaluation**
  - Need to assess how we can continuously improve

# Example: A program for the young

## *Five steps to planning success*

- **Program targeted to young workers**
  - They are the ones with low financial literacy
- **Used new methods of communication**
  - Video and narratives
- **Kept the message free of economic/finance jargon**
  - Very important for women
- **Covered concepts that people know the least, such as risk diversification, in a simple story**

# Short video about risk

Risk diversification = don't put all your eggs in one basket



[Link to Video](http://gflec.org/education/) <http://gflec.org/education/>



# We measured whether it worked

- Tested interventions using an Internet panel
- Baseline questions on risk diversification
- Randomly assigned
  - Intervention group
    - ◆ Video only, narrative only, video & narrative
  - Control group
    - ◆ No intervention
- Repeated concept questions

# Findings

- After being exposed to videos, the performance on financial literacy questions (general knowledge and hypothetical choices) improved
- While young were targeted, the videos affected all age groups

# Visual Analytic Tool (FinVis)

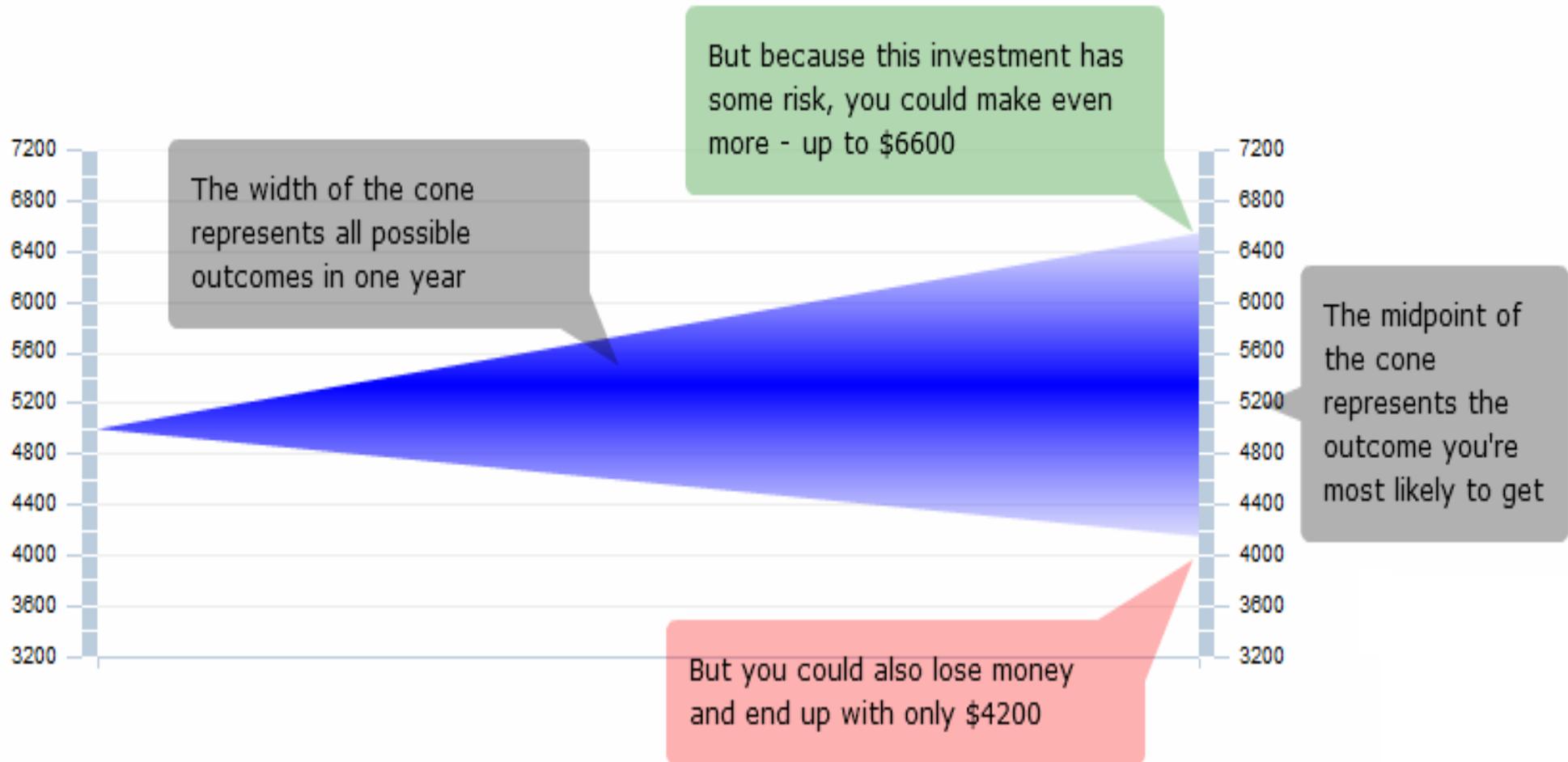
**Visualization:** Research shows use of computer-supported representation of data amplifies cognition

- Increases cognitive resources and expands working memory
- Reduces search effort and time costs – represents large amount of data in small space
- Enhances recognition of trends
- Encourages exploration of the decision space
- Increases confidence

# Goals of FinVis

- ✓ Help the user understand risk profiles of different types of stocks
- ✓ Help the user understand the impact of different rates of return, different standard deviations and correlations of assets
- ✓ Help the user learn why it is important to diversify *across stocks*
- ✓ Help the user learn why it is important to diversify *across asset classes*

# Visualizing risk



**FinVis: Don't put all your savings in one basket**

# FinVis tutorial – Visualizing risk

## FinVis

1 2 3

1

Introduction

Kate and Sam's choices

Your Choices

What can we expect from different investments?



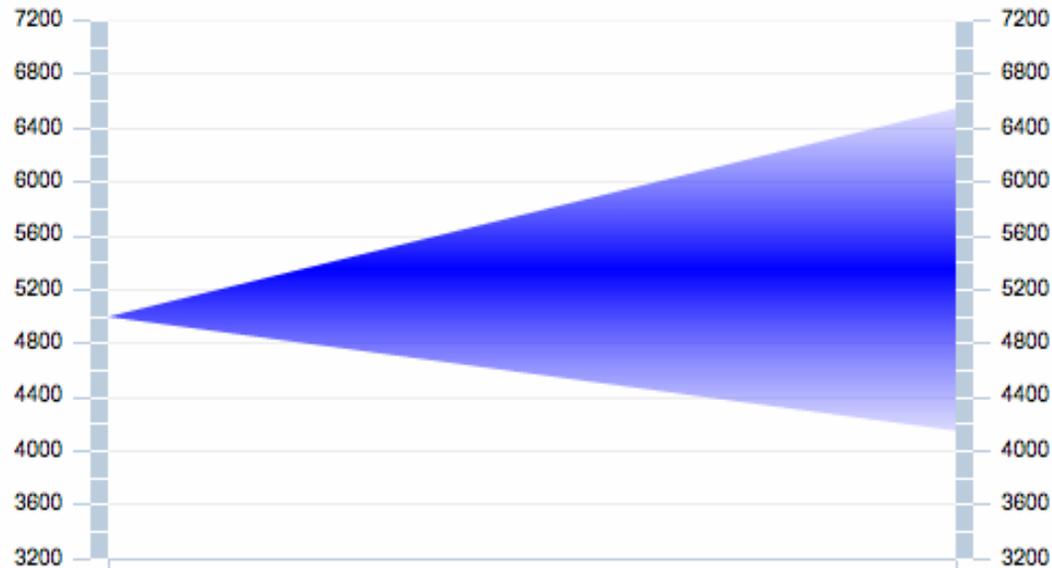
Invest in R

I decided to put my \$5000 in the investment with some risk, the "Riskier Fund".

I decided to put my \$5000 in the investment with less risk, the "Less Risky Fund".



Invest in L



Back

# There is much evidence that well designed programs work

## Financial literacy in school

- Brown, Collins, Schmeiser, and Urban (2014). *State Mandated Financial Education and the Credit Behavior of Young Adults*
  - When exposed to rigorous programs and trained teachers, students do well and are less likely to have problems with debt
- Walstad, Rebeck, and MacDonald (2010) . *The Effects of Financial Education on the Financial knowledge of High School Students*
  - Course content, amount of instruction, test measurement all matter
- Tennyson and Nguyen (2001). *State Curriculum Mandates and Student Knowledge of Personal Finance*
  - Students mandated to take a financial education course did better than students not exposed to a course

# New field in college: Personal Finance

## A new course at the George Washington University

### *Financial Decision-Making: Implications for the Consumer and the Professional*

- **Cover personal finance with a rigorous approach**
  - A quantitative approach to personal finance
  - Teaching takes into consideration gender differences in fin literacy
- **It incorporates some macro, accounting, and risk management**
- **Designed using National Standards on Financial Literacy and work in PISA**

# Our (STAR) students: A Teacher's Perspective

**Undergraduates, graduate students and... athletes**

Our students in and out of the classroom

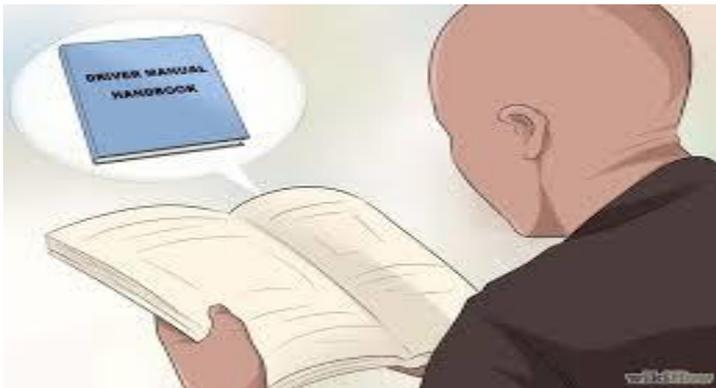


# Conflicting evidence on the effectiveness of financial education?

## Learning from meta-analyses

- Fernandes, Lynch and Netemeyer (2014). *Financial Literacy, Financial Education, and Downstream Financial Behaviors*
  - Interventions to improve financial literacy explain only 0.1% of the variance in financial behaviors
- What this paper shows is that the *dosage* we have used in financial education is wrong
  - Programs are very limited (an average of 10 hours)
  - Quality of material and teachers is rarely available
  - Financial knowledge, like every knowledge decays over time, which is good otherwise the data would be suspicious

# A simple analogy



# Beijing Financial Literacy Manifesto



***“... the International Federation of Finance Museums (IFFM) is committed to promoting financial literacy globally, raising awareness that every individual in every country is in need of financial literacy.”***

# Final thoughts

## ➤ **Financial literacy is like reading and writing**

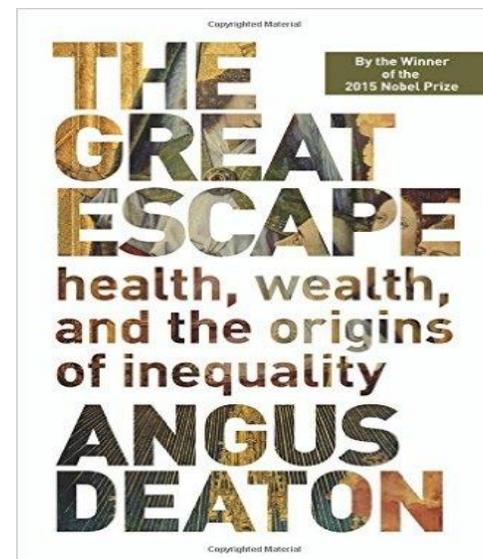
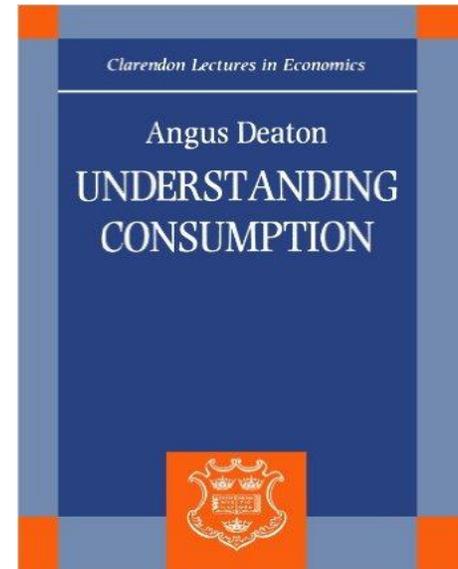
- As it was not possible in the past to participate in society without being able to read and write, so it is not possible to thrive in today's society without being financially literate

## ➤ **Building human capital for the 21<sup>st</sup> century**

- Everyone deals with finance and finance is sufficiently complex that it belongs in school

# 2015 Nobel Prize in Economics

**The Nobel Prize in Economics was awarded to Angus Deaton. He made us understand consumption models, the importance of measurement, and that the final objective is well-being**



# Quote

**“Knowledge is in every country  
the surest basis of public  
happiness.”**

***George Washington, First President of the  
United States (1789–97)***

# Quote

**“(Financial) knowledge is in every country the surest basis of public happiness.”**

*George Washington, First President of the United States (1789–97)*

# References for cited papers

“Optimal Financial Knowledge and Wealth Inequality,” A. Lusardi, P.C. Michaud, and O.S. Mitchell, forthcoming *Journal of Political Economy*.

“Financial Knowledge and 401(k) Investment Performance: A Case Study,” R. Clark, A. Lusardi and O.S. Mitchell, forthcoming *Journal of Pension Economics and Finance*.

“Visual Tools and Narratives: New Ways to Improve Financial Literacy,” A. Lusardi, A. Samek, A. Kapteyn, L. Glinert, A. Hung and A. Heinberg, forthcoming *Journal of Pension Economics and Finance*.

“Five Steps to Planning Success. Experimental Evidence from US Households,” A. Heinberg, A. Hung, A. Kapteyn, A. Lusardi, A. Savikhin Samek, and J. Yoong, *Oxford Review of Economic Policy*, Winter 2014, vol 30(4), pp. 697-724.

Papers are posted here: <http://gflec.org/research/>

# Papers cited

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