GFLEC
GLOBAL FINANCIAL LITERACY EXCELLENCE CENTER

Biases in Consumer Finance

Lecture 12

Financial illiteracy and biases

Financial decision-making faces many obstacles:

- Lack of knowledge
- Psychological biases

The two can also mix: we have biases because of ignorance

The ABCs of personal finance

In the class, we have seen it is essential to know about the following concepts:

- Interest compounding
- Inflation
- Risk diversification

Interest Compounding and Exponential Growth Bias

Exponential growth bias

- Exponential growth bias is the tendency for individuals to partially neglect compounding of exponential growth.
- It is the inclination to underestimate the future value of a variable growing at a constant rate.
- Essentially, individuals tend to "linearize" the formula of interest compounding.
- When asked to guess the future value of an investment growing at a compound rate, a representative sample of Swedish adults was almost twice as likely to underestimate the correct amount than to overestimate it.
    - Source: Almenberg, J. and Gerdes, C. "Exponential Growth Bias and Financial Literacy." *Applied Economic Letters*, 2011.

Comments

- The formula is complex and difficult to grasp if people do not have an understanding of math.

$$F = P(1+r)^T$$

- Ignorance is consequential: Research shows that more biased households save less, borrow more, and are less likely to invest in stocks.

Financial literacy and exponential growth bias

- Ignorance and biases are often correlated: Individuals who display larger exponential growth biases will also have lower financial literacy (Almenberg and Gerdes, 2011).

- The bias tells us that there is an asymmetry: people underestimate therefore they are more likely to save less rather than save more.

What can be done?

Possible solutions:

- Show visually how the interest compounding works.
- Simplify the formula of interest compounding via the rule of 72.
- Rule of 72: How long it takes for money to double? Take 72 and divide by the interest rate you hope to earn

Money Illusion

Money illusion

- It refers to the tendency of people to think of currency in nominal, rather than real, terms.
- The nominal value of money is mistaken for its purchasing power at a previous point in the past.
- People usually use nominal prices as a rule of thumb for determining value, and real prices are only calculated if they seem highly salient (e.g. in periods of hyperinflation or in long term contracts).

Comments

- This bias is consequential because if people fail to take inflation into account in their planning, they will for example be unable to accumulate enough money for their retirement.

- If people fail to understand inflation, they do not grasp that the increase in prices over time will make them poorer and that cash carries a risk and delivers a negative return.

What can be done?

Possible solutions:

- Individuals should be explained the effects of inflation in simple terms (an example is the video we saw in class).

Risk Diversification

Diversification heuristic

- People use simple diversification heuristics: when faced with "*n*" options, people divide assets evenly across the options, the so called "1/*n*" rule.

- This is a naïve diversification strategy, which only rarely works to truly diversify risk and breaks down when n is large.

Empirical evidence for retirement savings

- In the world of retirement savings plans, Huberman and Jiang found a positive correlation between the fraction of equity funds offered to pension participants and the resulting allocation to equities for plans that offer up to ten investment choices.
  - Source: Huberman, G and Jiang, W. "Offering versus Choice in 401(k) Plans: Equity Exposure and Number of Funds." *Journal of Finance*, 2006.

- The correlation is no longer significant in plans with more than ten funds.

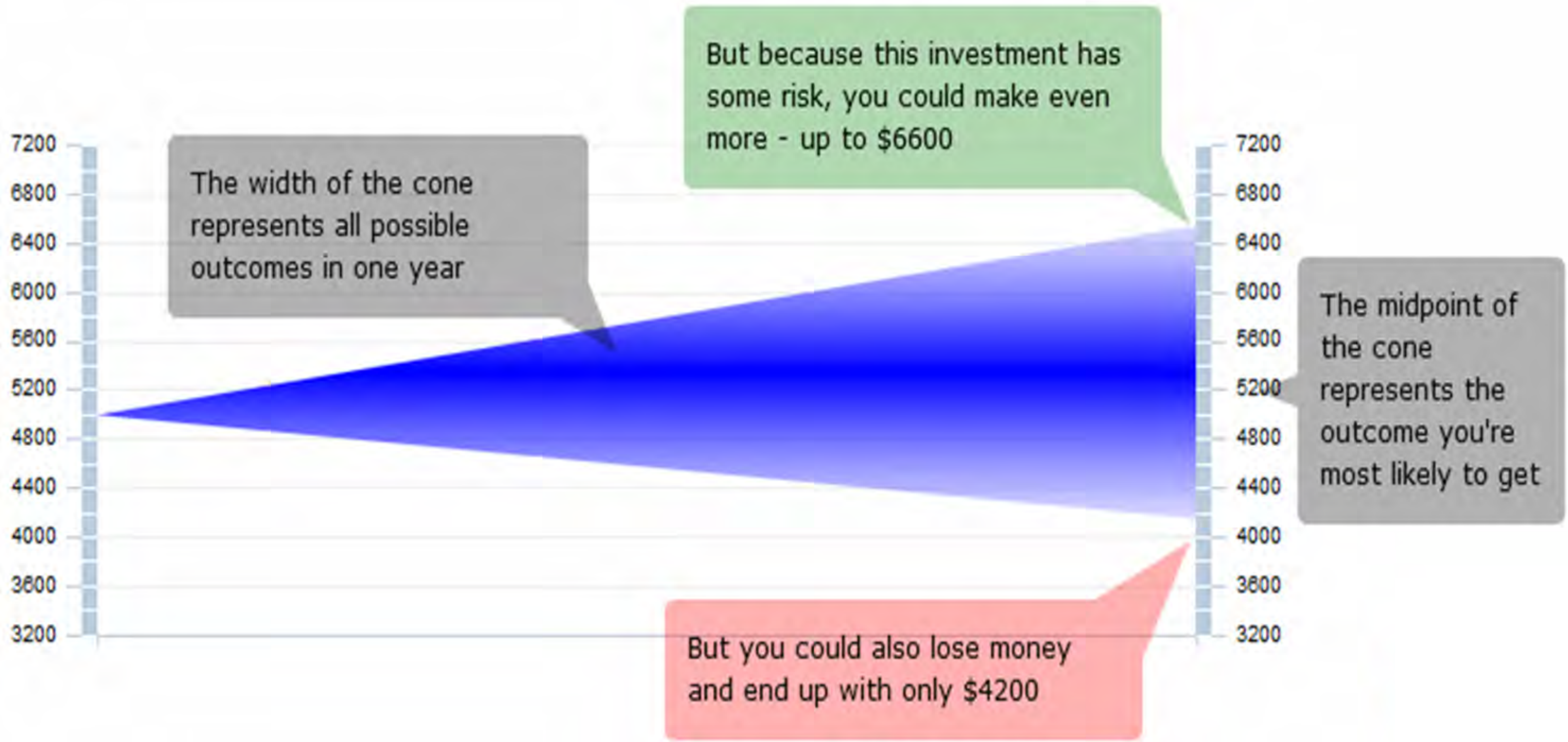
What can be done?

Possible solutions:

- Use visual tools to show how risk diversification works.
- Teach the concept of risk diversification in simple ways.

FinVis

Don’t put all your savings in one basket



Source: Lusardi, A. et al. “[Visual Tools and Narratives: New Ways to Improve Financial Literacy](#).” *National Bureau of Economic Research*, 2014.