

Experimental Economics: Methods & Topics

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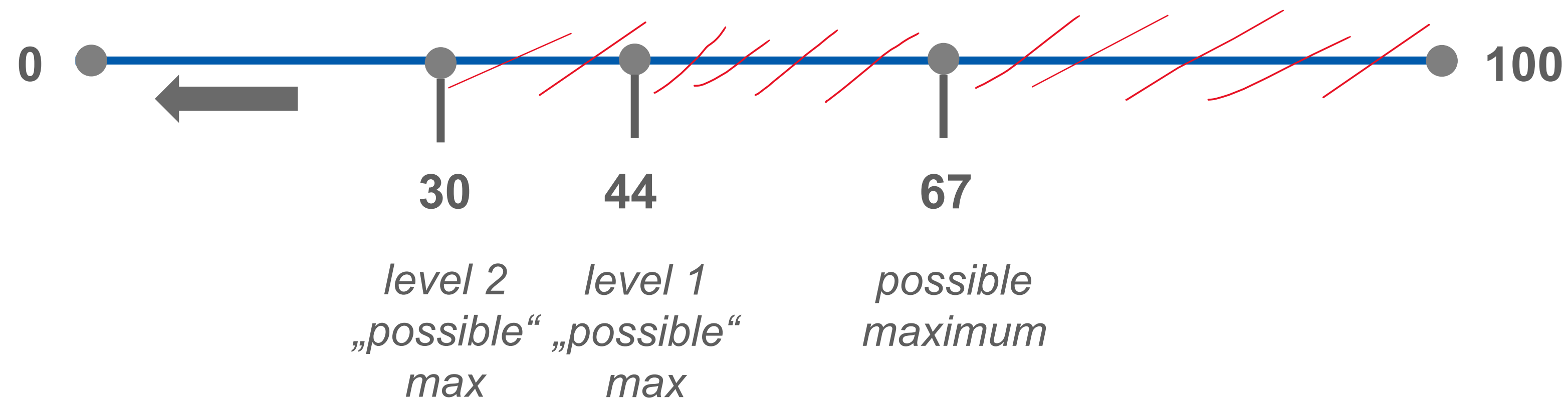


Let's play a game

- Guess an integer number from the interval 0 to 100.
- The winner is the student whose guess is closest to $\frac{2}{3}$ times the average of the guesses of all students ...
- ... and gets 10€ (for real!).
- If there are multiple winners, the price will be shared equally.

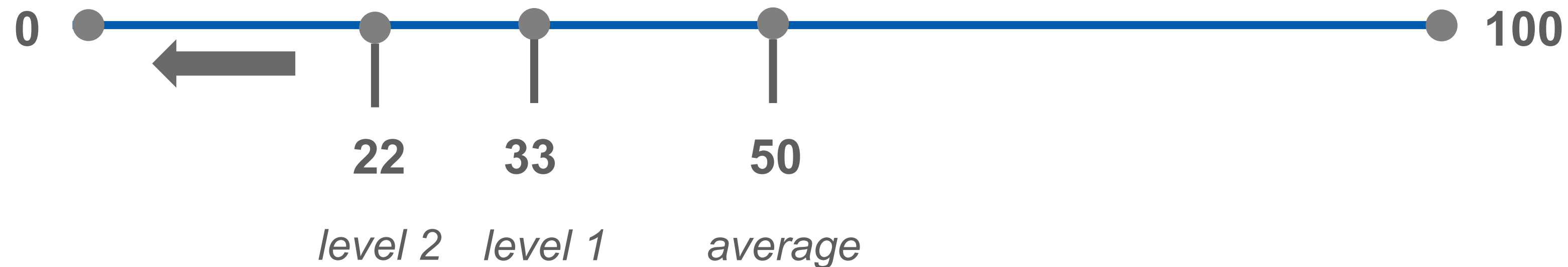
The game-theoretical solution

- Dominated numbers
- Iterative elimination of dominated numbers → theoretic equilibrium of 0



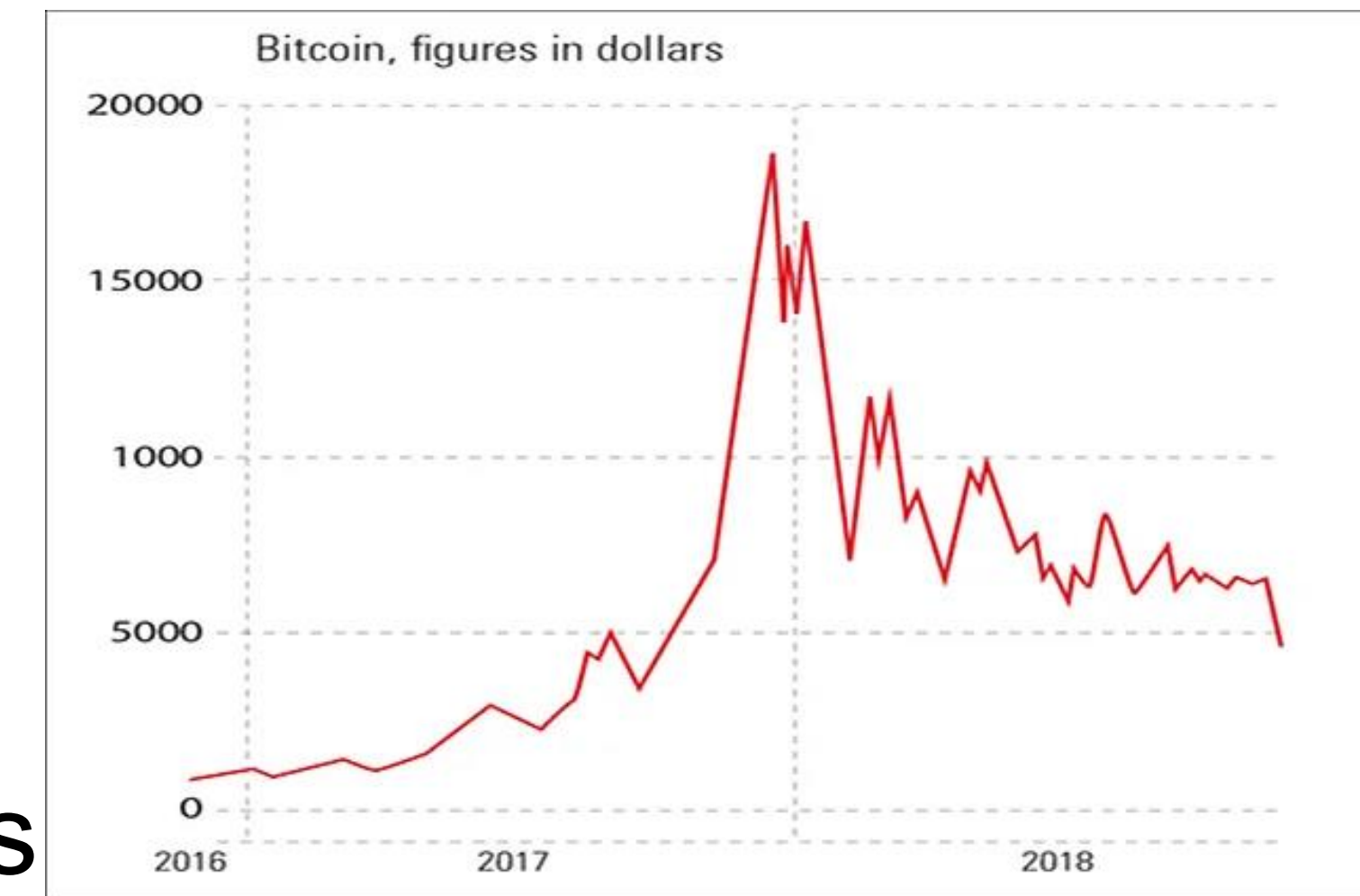
What happens in experiments?

- Theoretically, equilibrium $\rightarrow 0$.
- Empirically, average is not 0 $\rightarrow$ e.g., 23.07 in Camerer (2003).

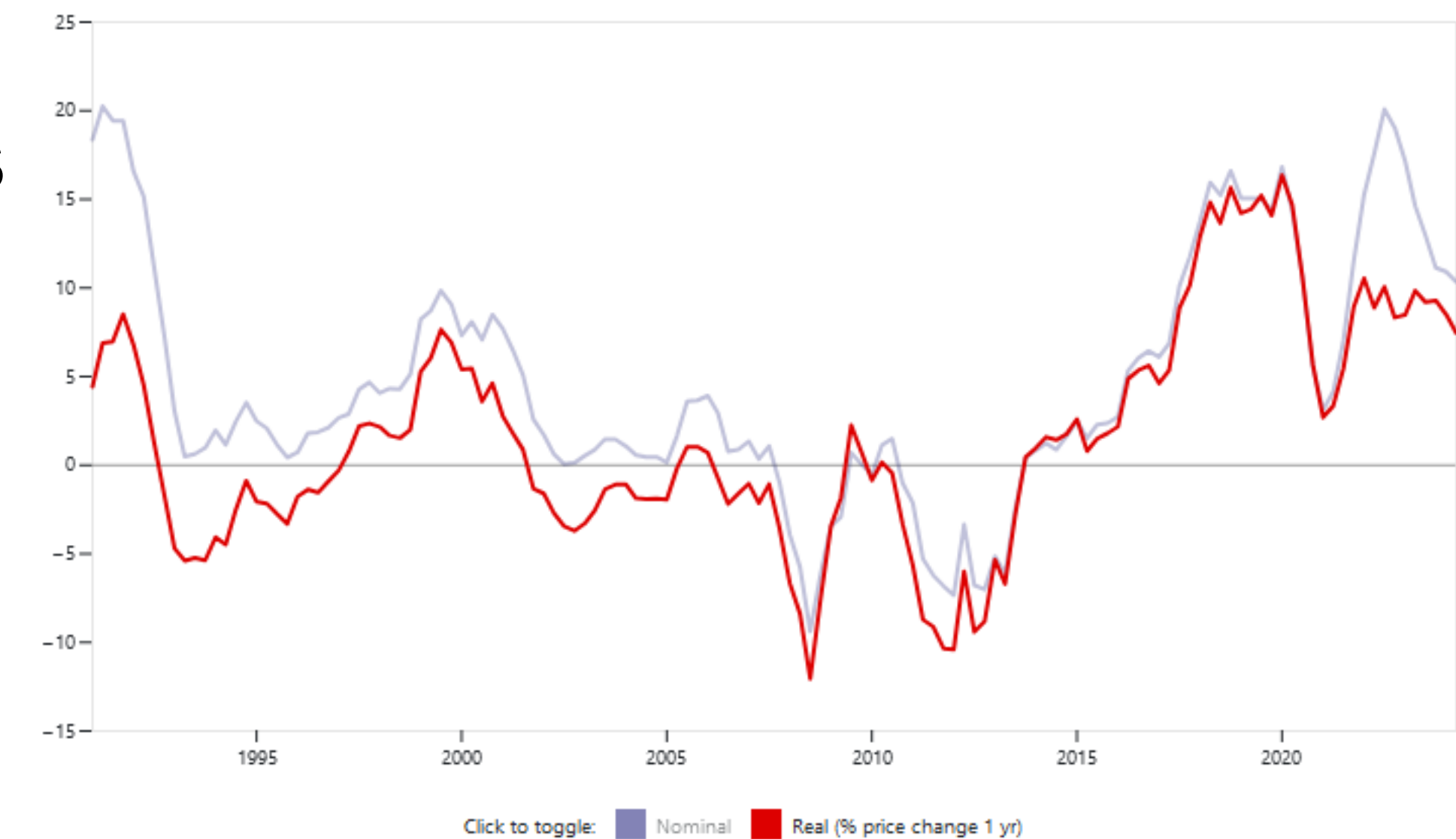


Why is this Economics?

- Guessing game (Nagel, 1995) → *k-level reasoning*
- Used to explain financial markets → bubbles and crashes
- *Idea*: higher profit from investing in stocks others will buy, than fundamentally most valuable stocks
- Problem → right timing: *leave before it crashes*



Portugal's house price annual change



What is game theory?

A few formal definitions

- Branch of mathematics
 - Studies strategic interactions between decision-makers (players)
- Framework to model situations where the outcome of a player does not only depend on her own decision but also on the decisions of other players

Applied examples



- *The Dark Knight* (2008) – ferry dilemma
- Public transport dilemma

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A few formal definitions

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- Studies strategic interactions between decision-makers (players)
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 - **Contrast to decision theory (e.g., St. Petersburg Paradox)**

St. Petersburg paradox

Toss a fair coin

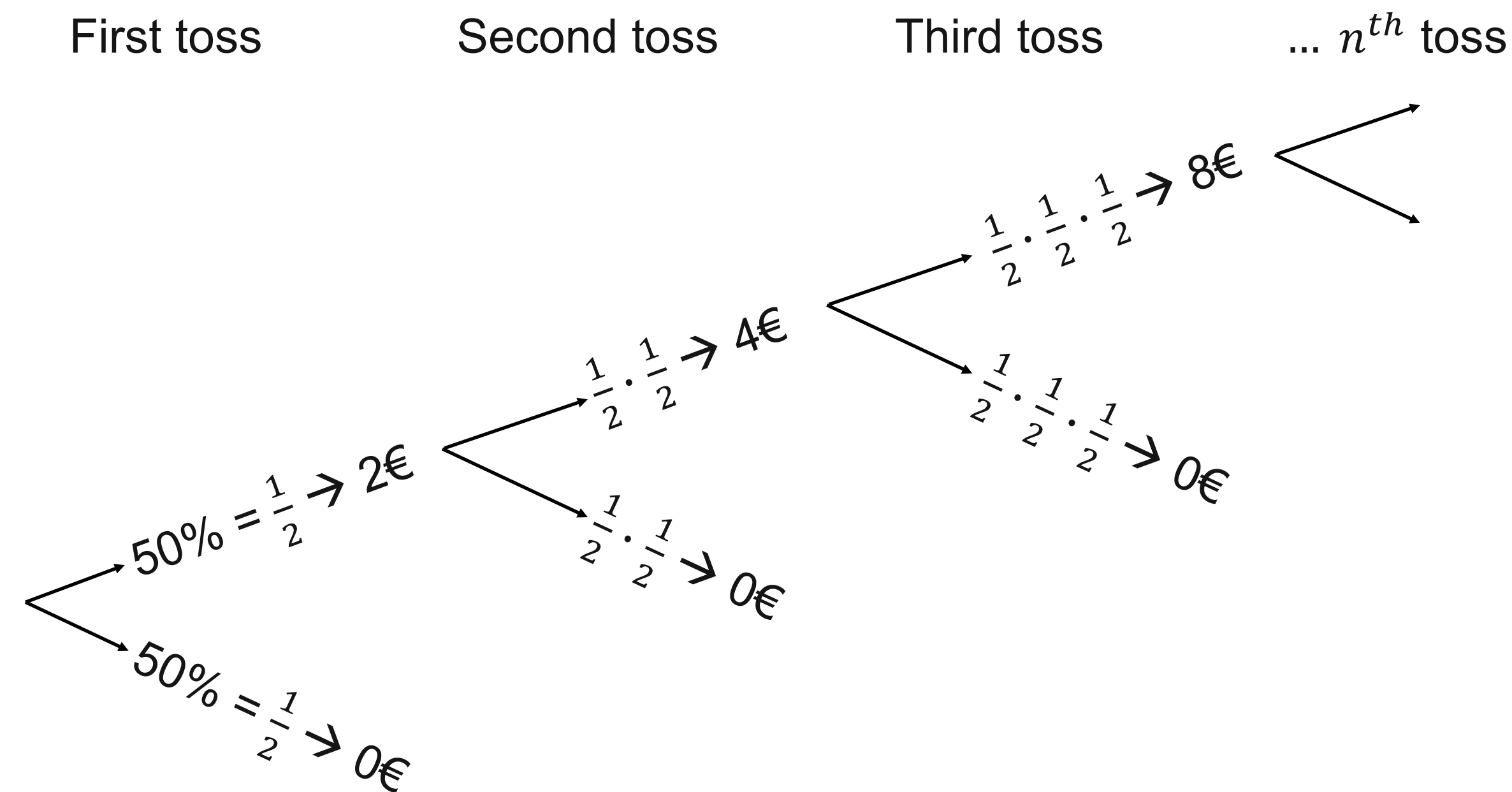
- How much would **you** pay to play?
- What is the expected value (EV)?



$1 \text{ x} \rightarrow 2 \text{ €}$
 $2 \text{ x} \rightarrow 4 \text{ €}$
 $3 \text{ x} \rightarrow 8 \text{ €}$
 $n \text{ x} \rightarrow 2^n \text{ €}$



End of the game



- $$EV = \frac{1}{2} \cdot 2\text{€} + \frac{1}{4} \cdot 4\text{€} + \frac{1}{8} \cdot 8\text{€} + \dots + \frac{1}{2^n} \cdot 2^n\text{€}$$

$$= 1\text{€} + 1\text{€} + 1\text{€} + \dots + 1\text{€} = \infty$$

Who am I?

- **Assistant professor, ISEG**
 - since September 2024
- **PhD in Economics (joint doctorate)**
 - University of Amsterdam
 - Ca' Foscari University of Venice
- **Post-Doc**
 - Bocconi University (Milan)
- **Consulting jobs**
 - Philips, Amsterdam (Negotiation Excellence team)
 - Department of Labor, Region of Veneto (Italy)

Who am I?

- **Courses**

- Experimental Economics (Bachelor & Master/PhD)
- Game Theory (Master)
- Industrial Organization (Bachelor)

- **Research interests**

- Behavioral & Experimental Economics
- Decision-making & Consumer behavior
 - financial investments
 - subscription/insurance decisions
 - health decisions: vaccinations

- **For more details:** <https://frieder-neunhoeffer.com>

Who are you?