

# Financial Market Professionals' Higher Order Risk Attitudes

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# Behavioral Finance Meets Experiments

**Behavioral finance** combines behavioral and cognitive psychological theory with conventional economics and finance to provide explanations and **models** for understanding how and **why people make irrational financial decisions.**



The goals of **experimental finance** are to understand **human decisions and market behavior** (price dynamics) in settings relevant to finance and **test theories and models** developed in behavioral finance. Experiments are synthetic (simple and controlled) economic environments created by researchers to answer specific questions.

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**Nobel Prize**  
**2013!**

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**Vernon Smith**  
**Nobel Prize 2002!**

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# Data,data,data,

Detailed and updated observational data are available on all branches of economics, but in particular **finance** is characterized by **strong empirical traditions**.

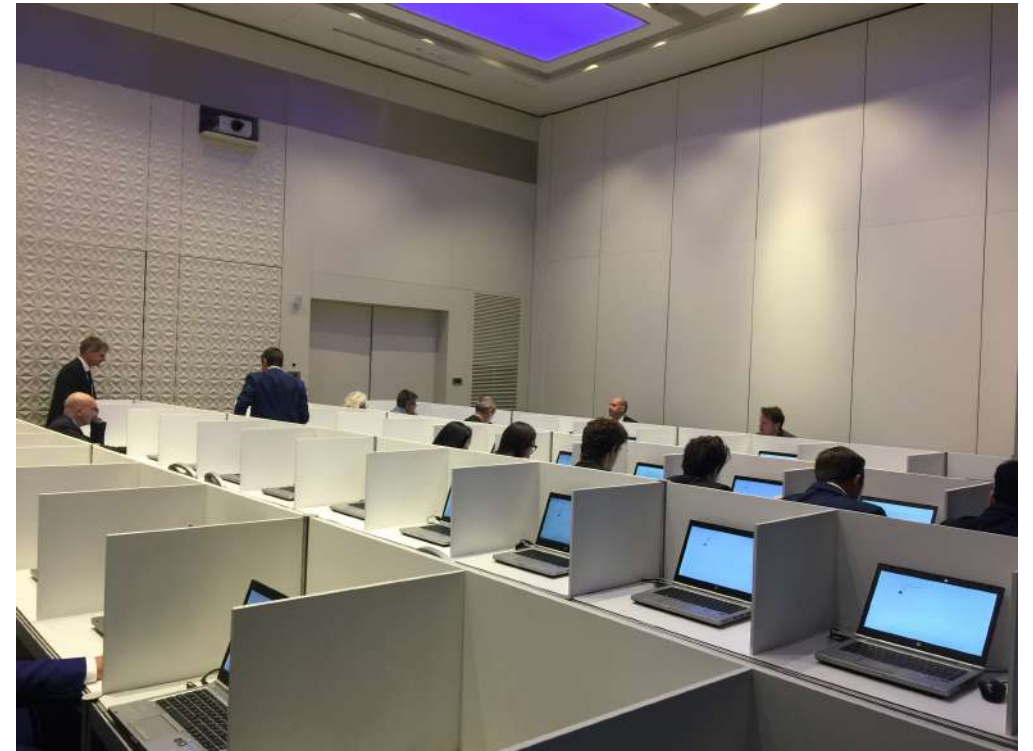
We have a further opportunity to collect new and controlled data : **EXPERIMENTS**

- LABORATORY EXPERIMENTS
- LAB-IN-THE-FIELD EXPERIMENTS
- FIELD EXPERIMENTS.

Allows us to:

- Avoid omitted-variables biases
- Avoid self-selection problems
- Avoid biases associated to endogeneity issues
- ...

and to properly address causality analysis



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- Behavioral and Experimental Analyses in Macro-finance  
Project funded by scientific foundations of France, Germany, Netherland, and Japan
- Project website (under-construction)
  - In English
    - <http://univ-cotedazur.fr/english/index-uca-jedi/vcpi/beam>
  - In Japanese
    - <http://beamproject.blogspot.jp/>



# Our research goal

Investigate higher order risk attitudes of financial professionals.

Compare to general / students population

Investigate possible correlations among higher order risk attitudes and demographic and job related variables

# What were the experiments conducted during IFTA 2017 @ Milan about?

- Experiment 1: Measurement of individual characteristics
  - **Cognitive reflection** (ability to reflect upon impulsive answers)
  - **Risk and higher order risk preferences**
  - Individual characteristics (**demographic and job related variables, ...**)
- Experiment 2: Experiment on “chasing of past returns”
  - In framed setting (description of options) vs
  - In non-framed setting (no description of options)



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# What makes a good trader? Reflexivity.

Some research in **experimental finance** is going on in this direction:

Research in cognitive science has identified and validated the **cognitive reflection test (CRT)** as a method for capturing a person's ability to **avoid common behavioral biases**.  
(Oechssler, Roider and Schmitz, 2009; Toplak, West and Stanovich, 2011, 2014).

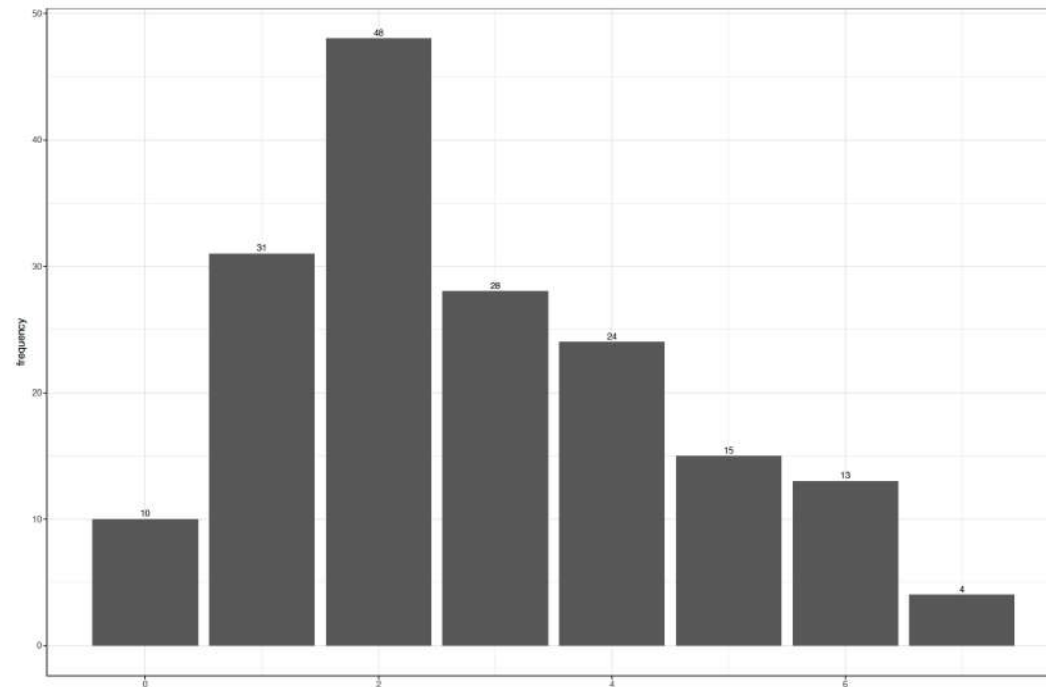
## **CRT3**

- *Se 2 infermiere impiegano 2 minuti per misurare la pressione sanguigna di 2 pazienti, quanto impiegheranno 200 infermiere per misurare la pressione a 200 pazienti?*
- *Un'insalata e una minestra costano 5,50 Euro in totale. La minestra costa 5 euro in più rispetto all'insalata. Quanti Euro costa l'insalata?*
- *Francesca sta preparando il tè freddo. Ogni ora la concentrazione del tè nell'acqua raddoppia. Se in 6 ore il tè è pronto, quanto tempo impiega per raggiungere la metà della concentrazione finale?*

# What makes a good trader? Reflexivity.

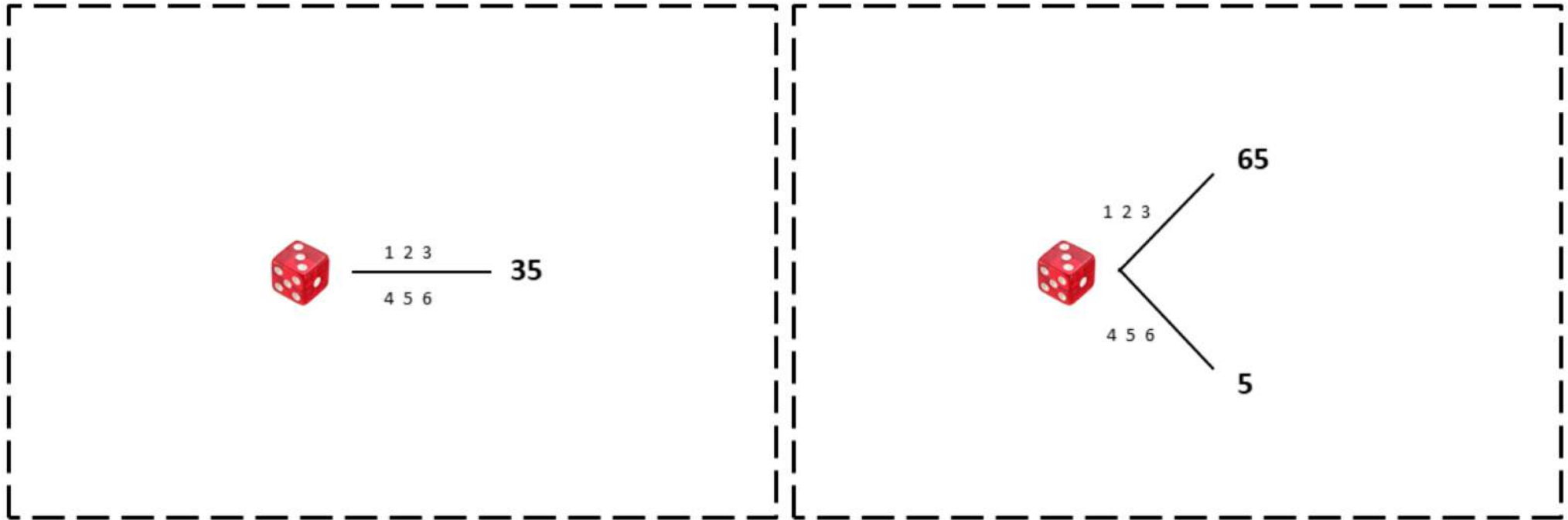
Some studies show that **cognitive reflection** and **theory of mind** skills are some important **drivers** of trader performance. Commonly-studied variables such as **financial literacy**, **personality traits and risk attitudes** play a **lesser role** in understanding trader performance. (Corgnet et al. 2018 Journal of Finance)

CRT-type questions are commonly asked in Wall Street interviews for trading positions. Not surprisingly, **professional traders** were found to **score remarkably high** on the **CRT**. (Zhou, 2008; Crack, 2014, Thoma et al. 2015).



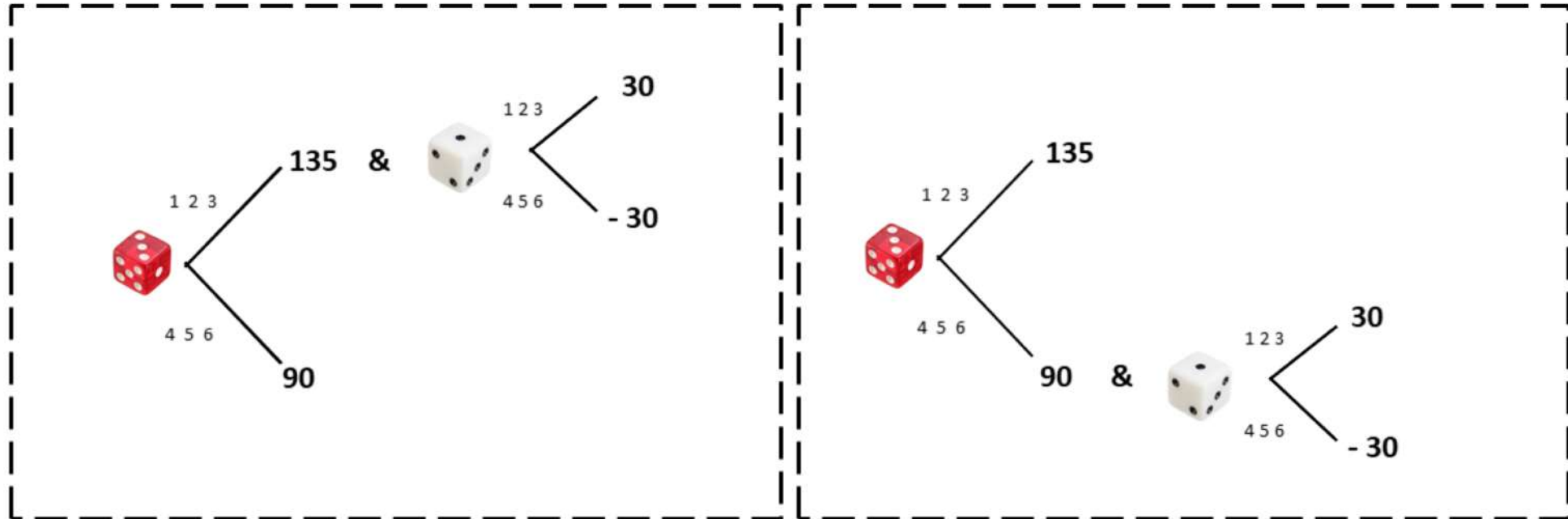
# Risk and higher-order risk preferences

- Risk aversion
  - "Variance aversion"



# Risk and higher-order risk preferences

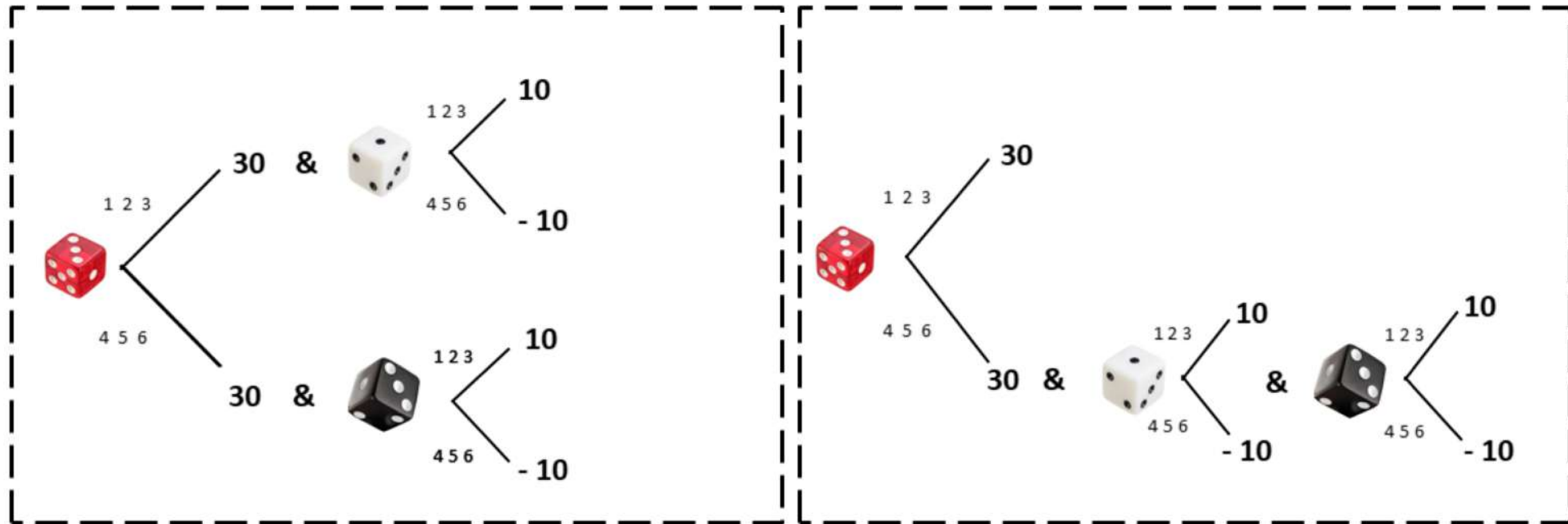
- Prudence = aversion for “downside risk”
  - Related to “Skewness”



Prudence attitude can explain “pre-cautionary savings”

# Risk and higher-order risk preferences

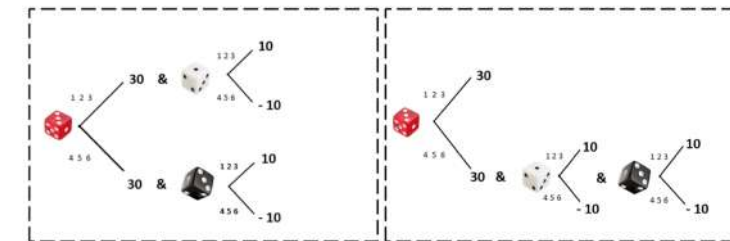
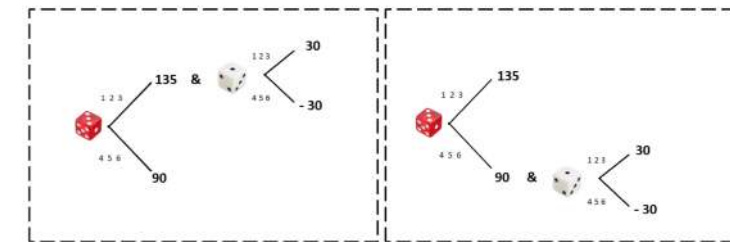
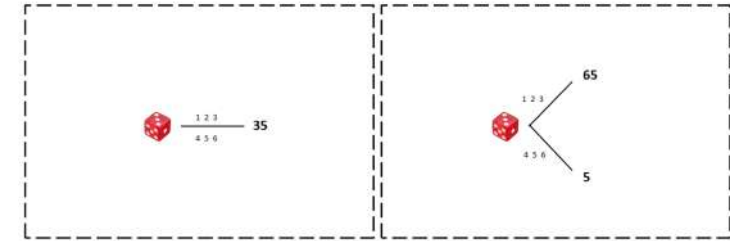
- Temperance=preference for “disaggregating risks”
  - Related to “Kurtosis” aversion



Temperance reduces the probability for risky investments and decreases the share of risky assets in her asset portfolio.

# List of the 17 compound lotteries

	Left lottery	Right lottery
Riskav 1	20	[65_5]
Riskav 2	25	[65_5]
Riskav 3	30	[65_5]
Riskav 4	35	[65_5]
Riskav 5	40	[65_5]
Prud 1	[(90 + [20_-20])_60]	[90_(60 + [20_-20])]
Prud 2	[(90 + [10_-10])_60]	[90_(60 + [10_-10])]
Prud 3	[(90 + [40_-40])_60]	[90_(60 + [40_-40])]
Prud 4	[(135 + [30_-30])_90]	[135_(90 + [30_-30])]
Prud 5	[(65 + [20_-20])_35]	[65_(35 + [20_-20])]
Temp 1	[(90 + [30_-30])_(90 + [30_-30])]	[90_(90 + [30_-30] + [30_-30])]
Temp 2	[(90 + [30_-30])_(90 + [10_-10])]	[90_(90 + [30_-30] + [10_-10])]
Temp 3	[(90 + [30_-30])_(90 + [50_-50])]	[90_(90 + [30_-30] + [50_-50])]
Temp 4	[(30 + [10_-10])_(30 + [10_-10])]	[30_(30 + [10_-10] + [10_-10])]
Temp 5	[(70 + [30_-30])_(70 + [30_-30])]	[70_(70 + [30_-30] + [30_-30])]
RA_EU1	[40_30]	[50_24]
Prud_EU2	[(50 + [25_-25])_30]	[50_(30 + [15_-15])]



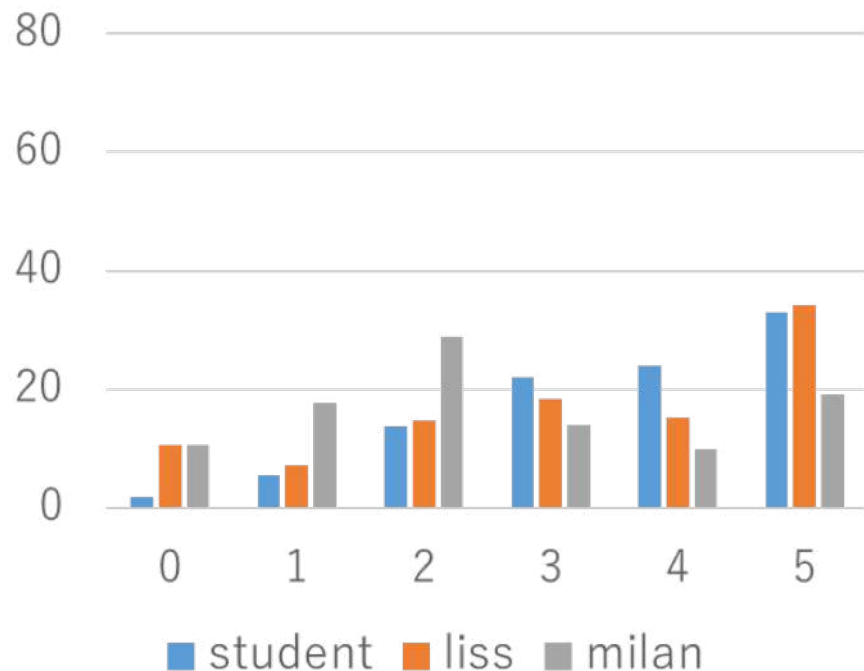


# Higher order risk attitudes

Experimental results suggest that professional subjects w.r.t. general population.

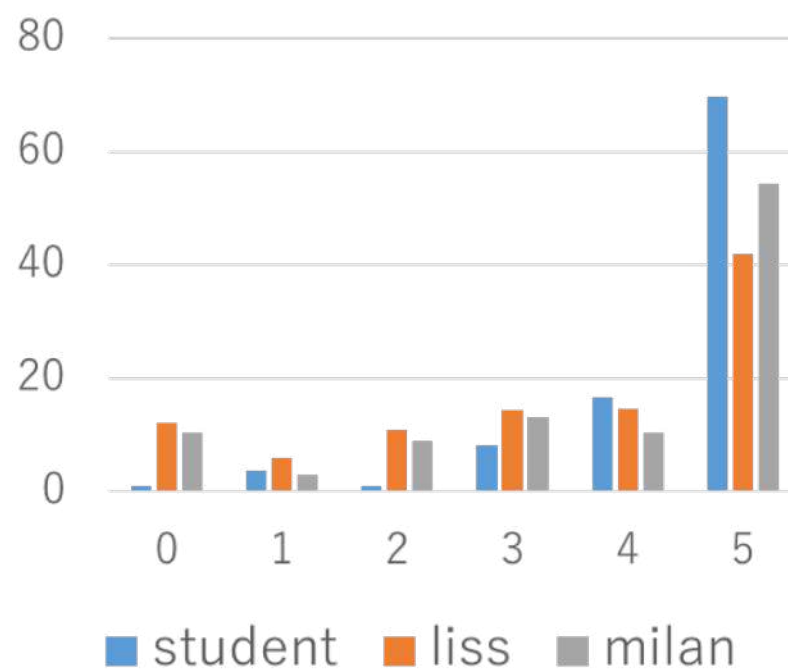
## more risk lovers

Number of Safe Choice



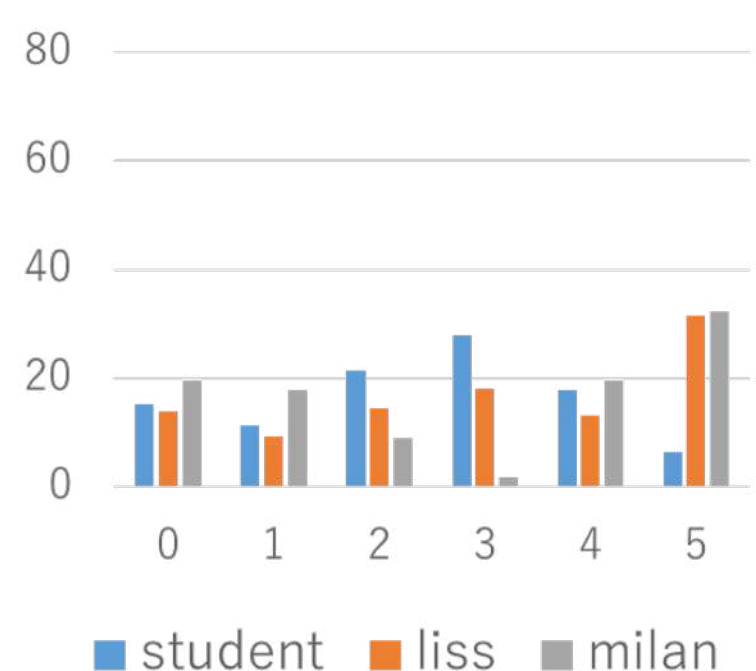
## more prudent

Number of Prudent Choice



## no difference

Number of Temperant Choice



# Demographic and Job related variables

## RISK AVERSION

- $\uparrow$  CRT score is associated with  $\downarrow$  risk aversion: more reflective financial professionals are less risk averse, while impulsive subjects are not.
- Weak evidence of a gender effect according to which females exhibit  $\downarrow$  risk aversion with respect to males.

## PRUDENCE

- Subjects who trade on the derivative markets are more prudent with respect to professionals operating on spot market.
- We find a bell shaped relation between prudence and age.

## TEMPERANCE

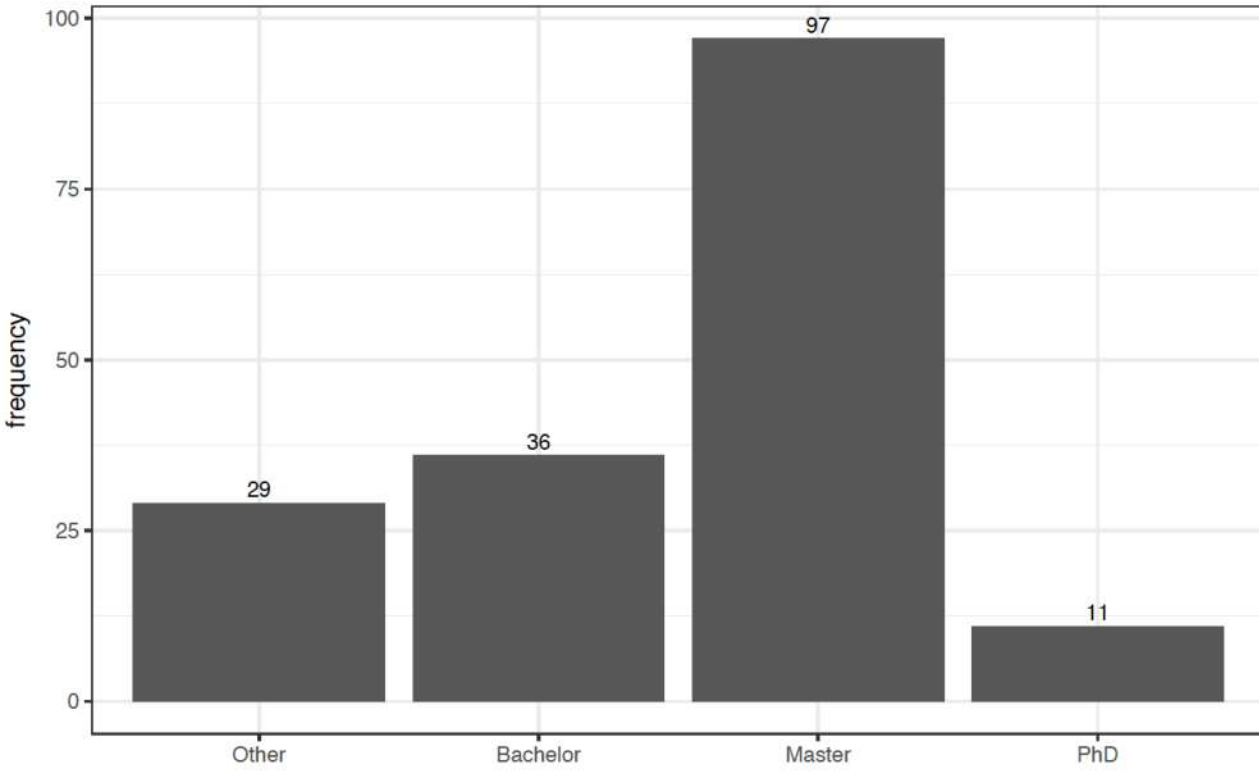
- No conclusive results on temperance

Thank you very much for your attention

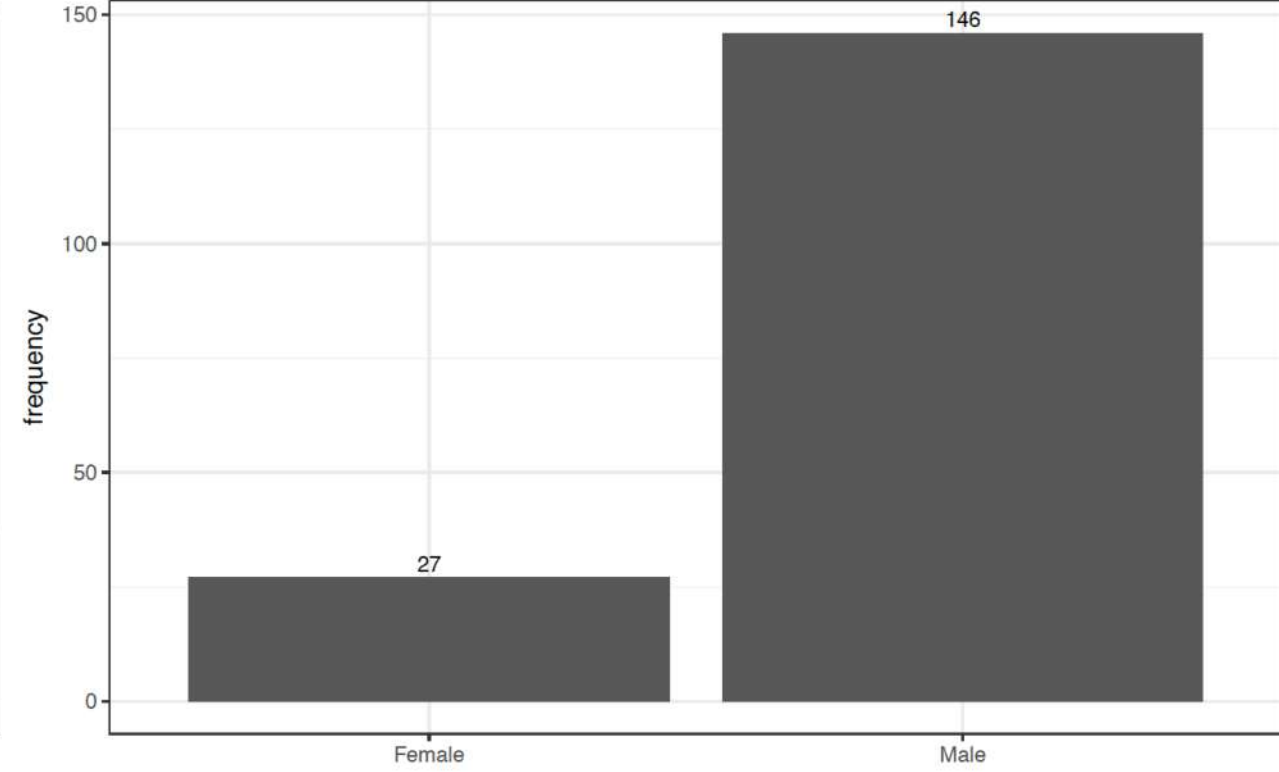
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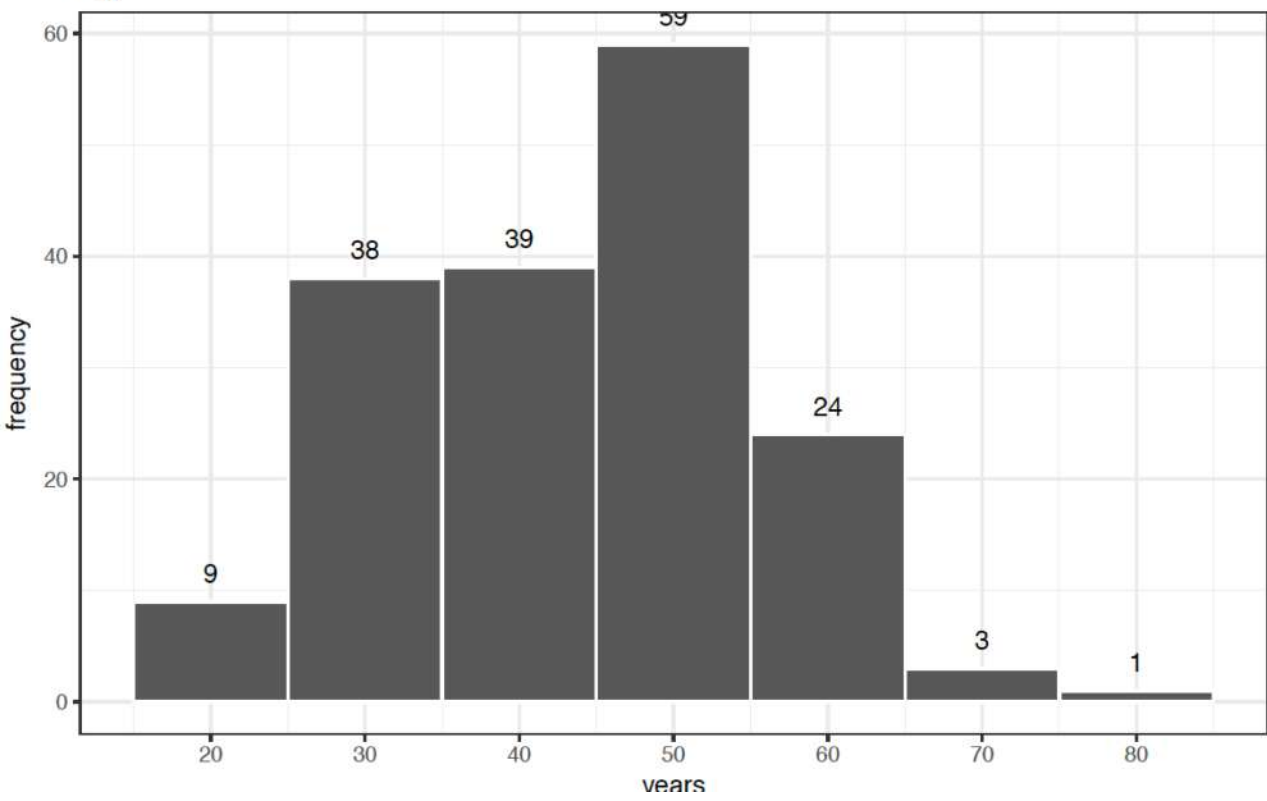
Academic background



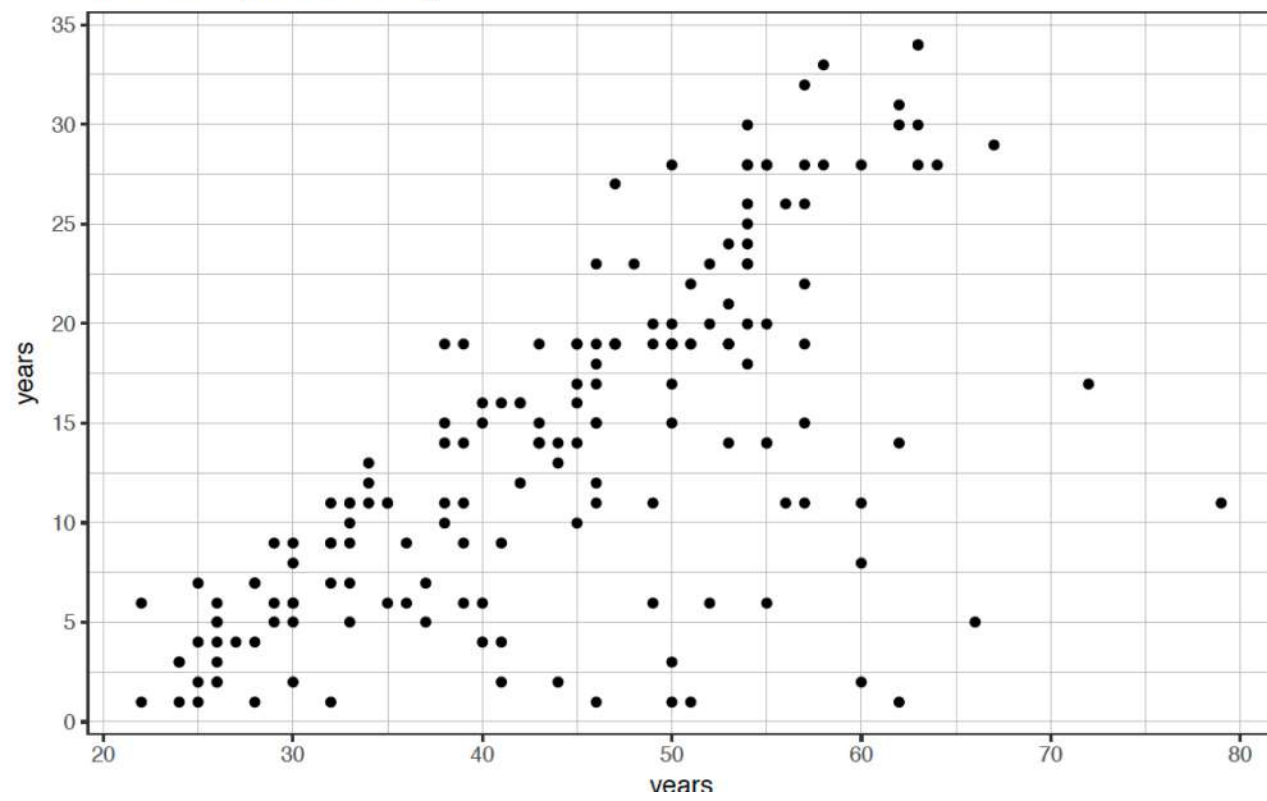
Gender



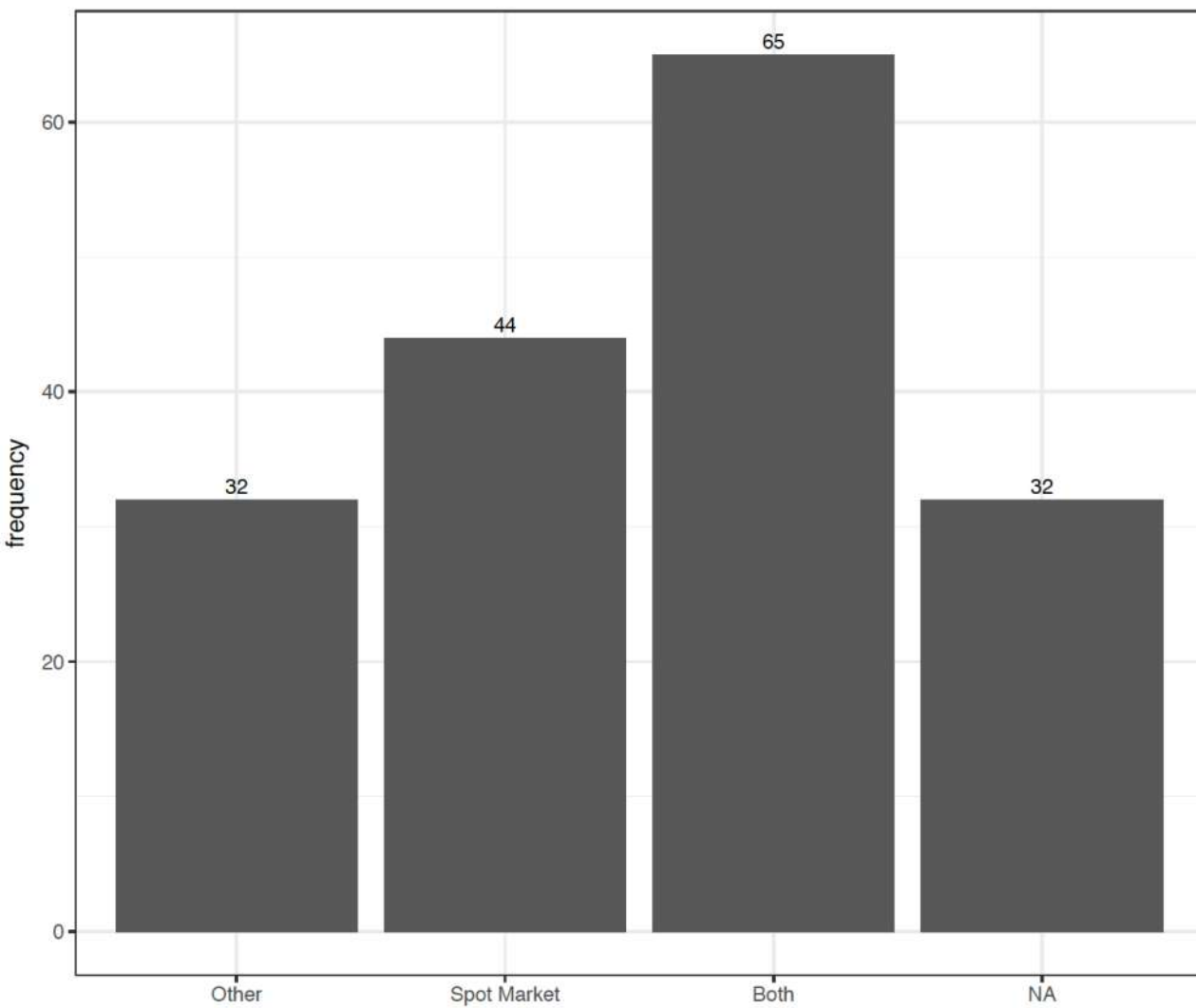
Age



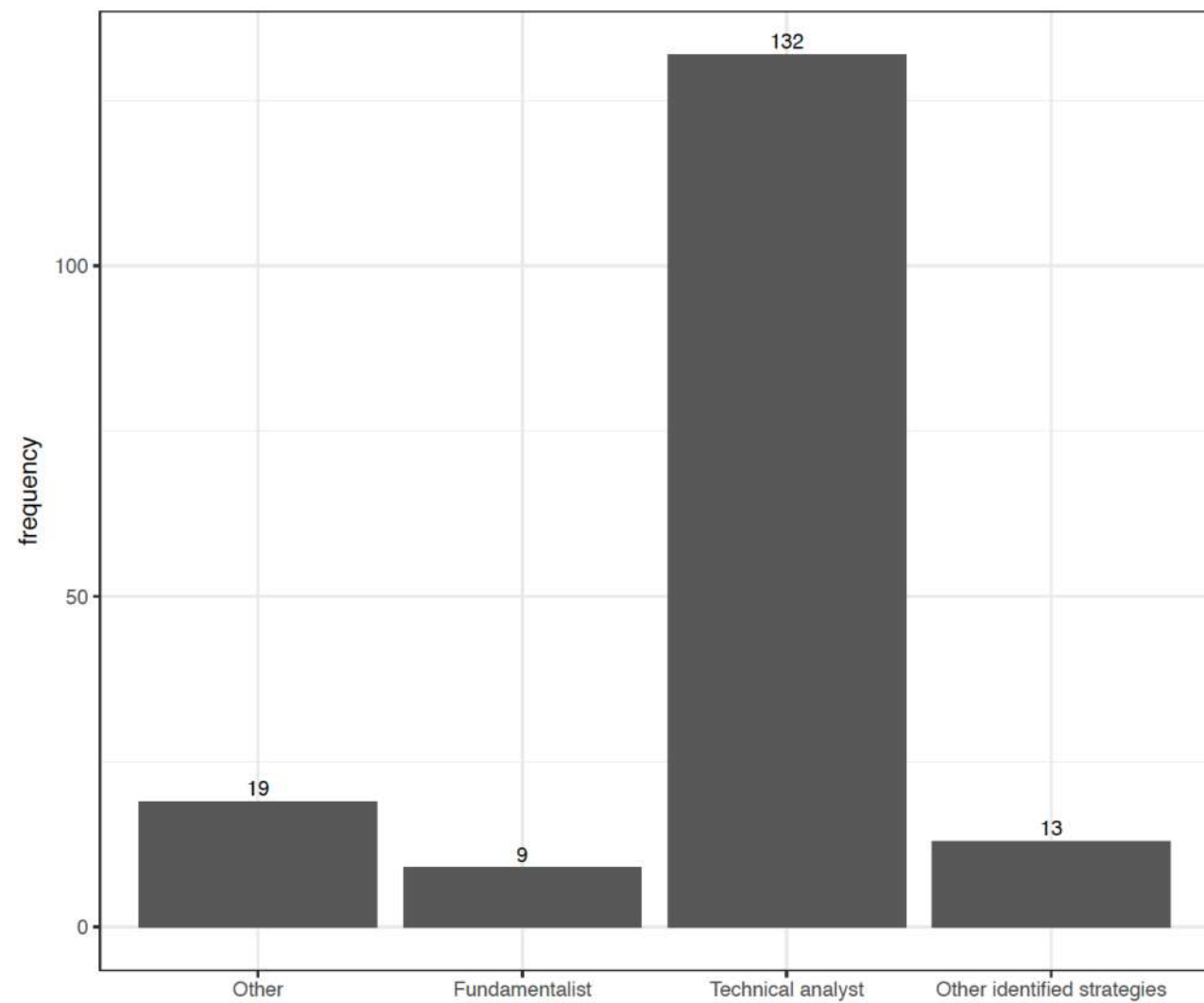
Years of experience vs age



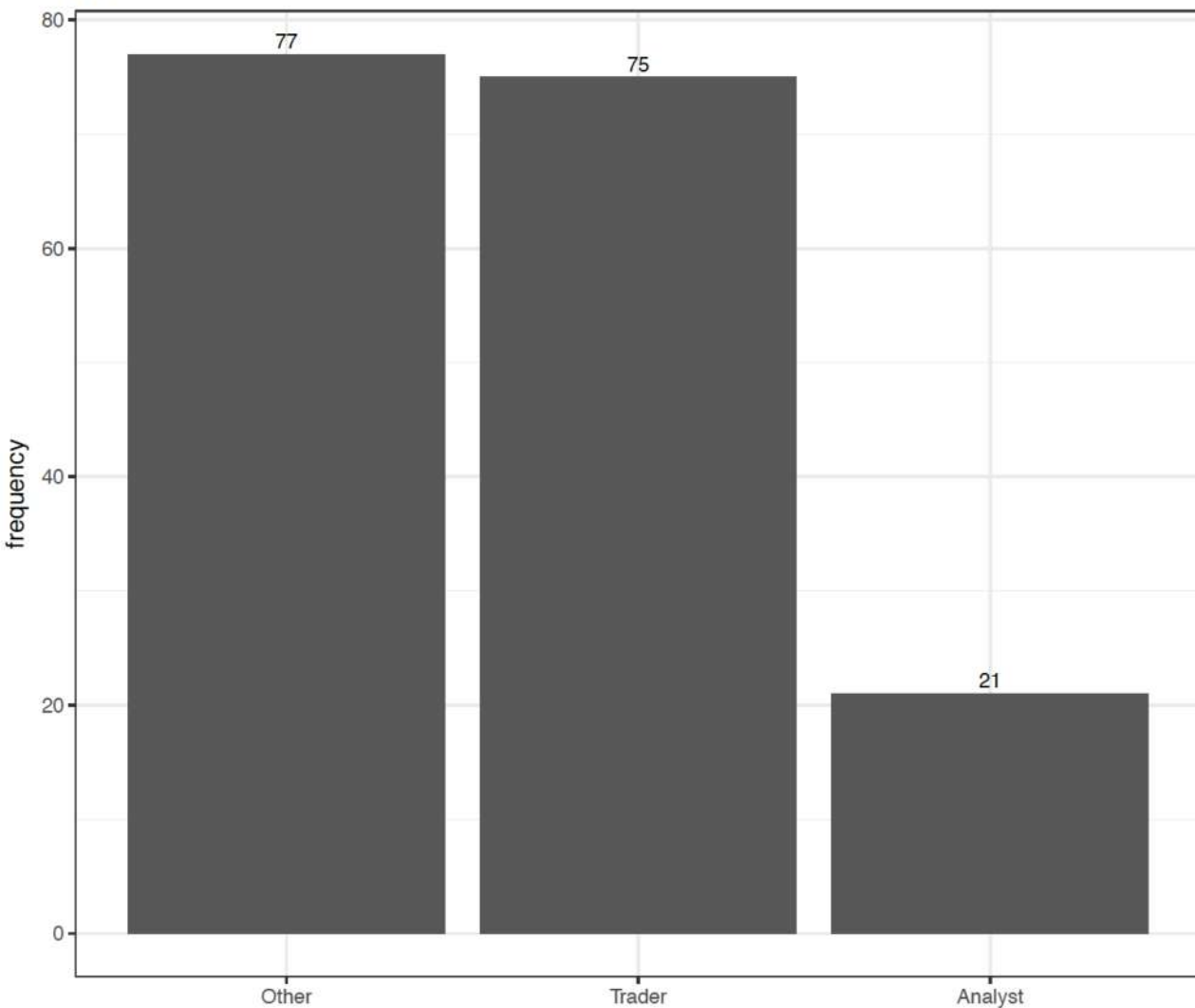
Market type



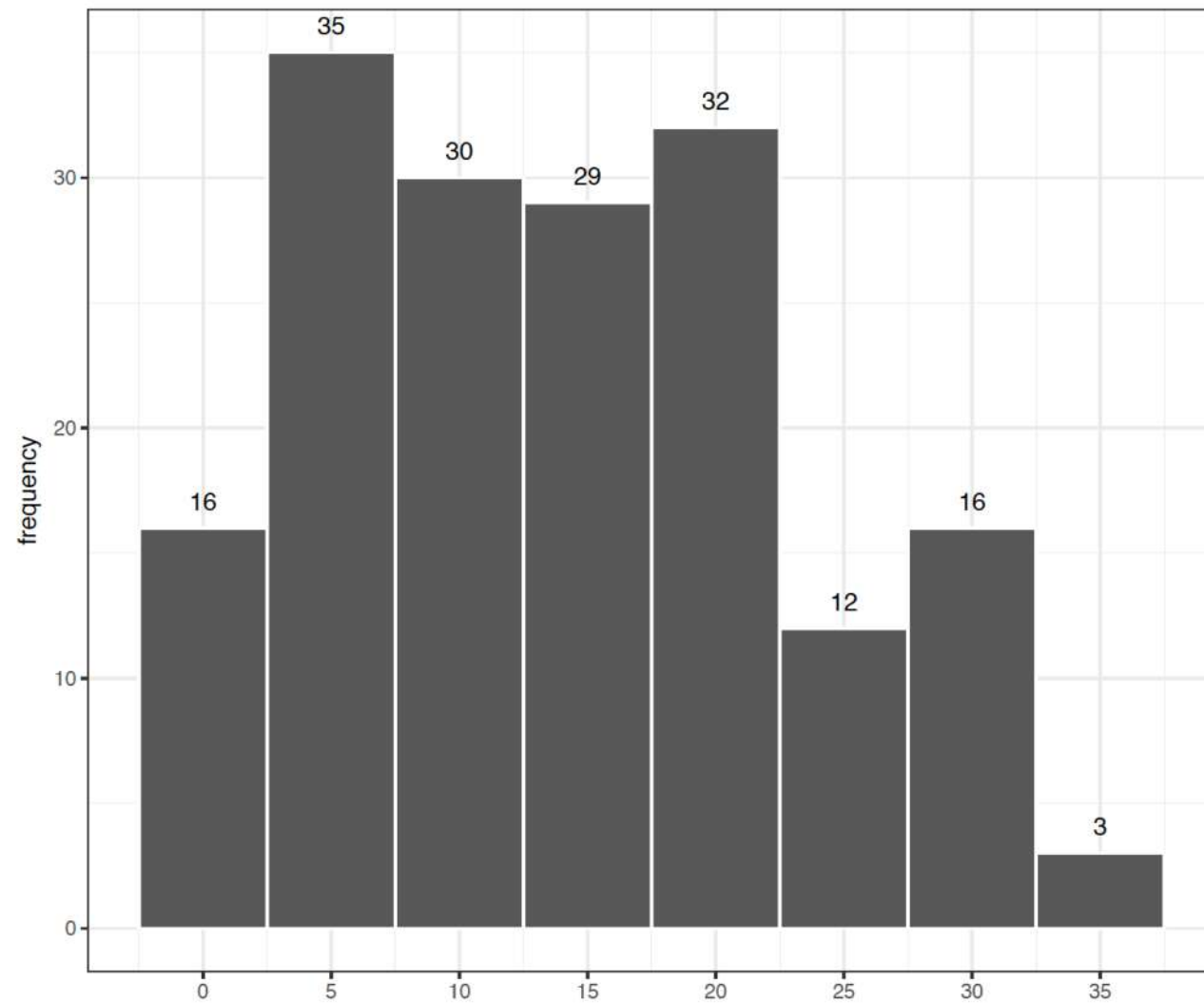
Employed strategy



Job



Years of experience





# Country of work

