

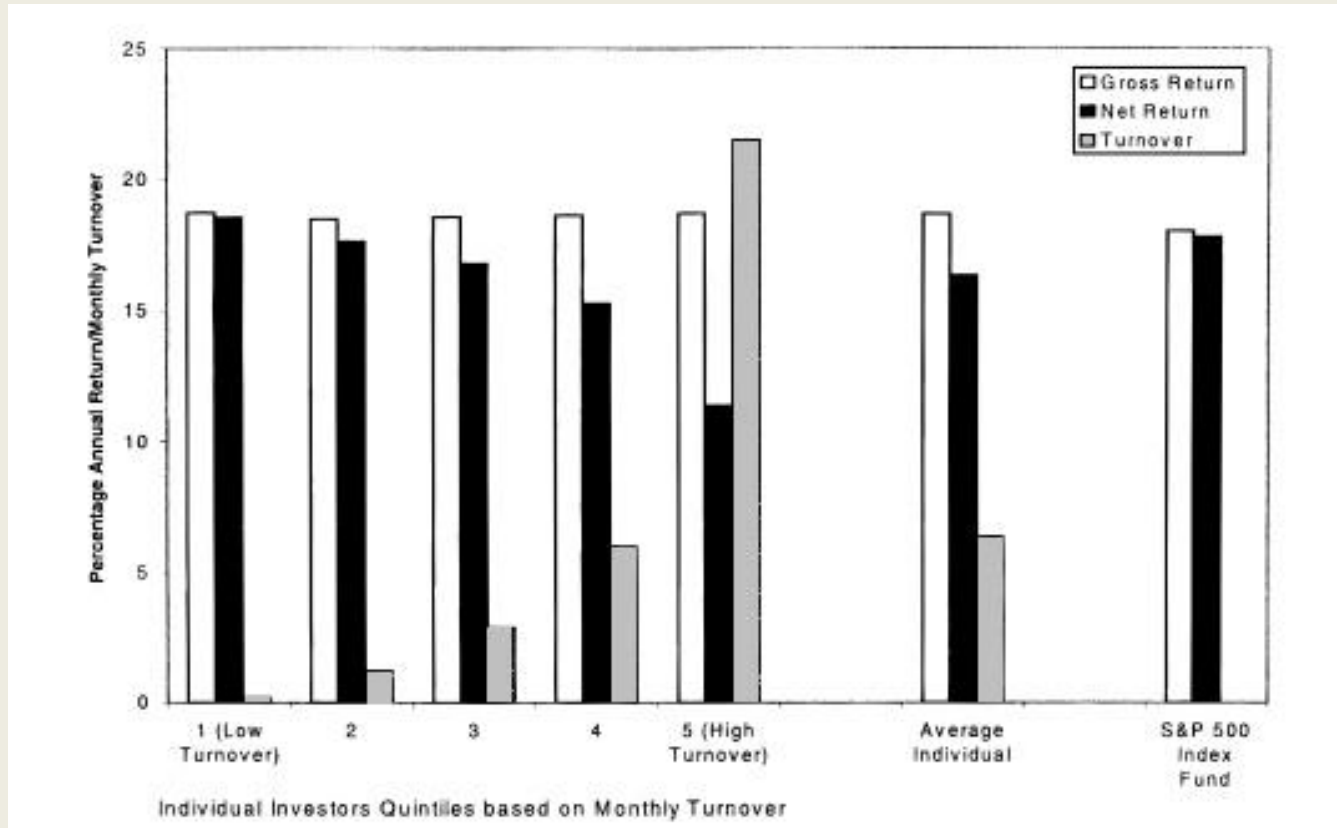
# **Stock Loan Lotteries and Individual Investor Performance**

Jordan Moore  
IWFSAS 2017 Conference  
August 25, 2017

# How do you motivate investors to improve performance?

- They trade excessively.
  - Barber and Odean (2000)
- They sell stocks with high expected returns.
  - “Disposition Effect”
  - Odean (1998)
- They gamble.
  - Kumar (2009)
- I propose a financial innovation:
  - Stock Loan Lotteries
  - Prospect Theory: Kahneman and Tversky (1979), Tversky and Kahneman (1992)

# Some investors have a very expensive gambling problem!



Barber and Odean (2000) Figure 1

# Investors are already maximizing utility.

- Revealed Preference
  - Buy and Hold would increase returns NOT utility
- If investors buy and hold:
  - Loan shares and pay (net) lending fees
  - But fees are low [D’Avolio (2002), Cohen et al. (2007)]
- Pool the loan fees and hold lotteries!
  - Prospect theory investors overweight low-probability payoffs.
    - Tversky and Kahneman (1992) “decision weights”
  - “Prize-Linked” financial products are popular.
    - Kearney et al. (2010)
  - Financial gambling and casino gambling are substitutes.
    - Dorn et al. (2014)

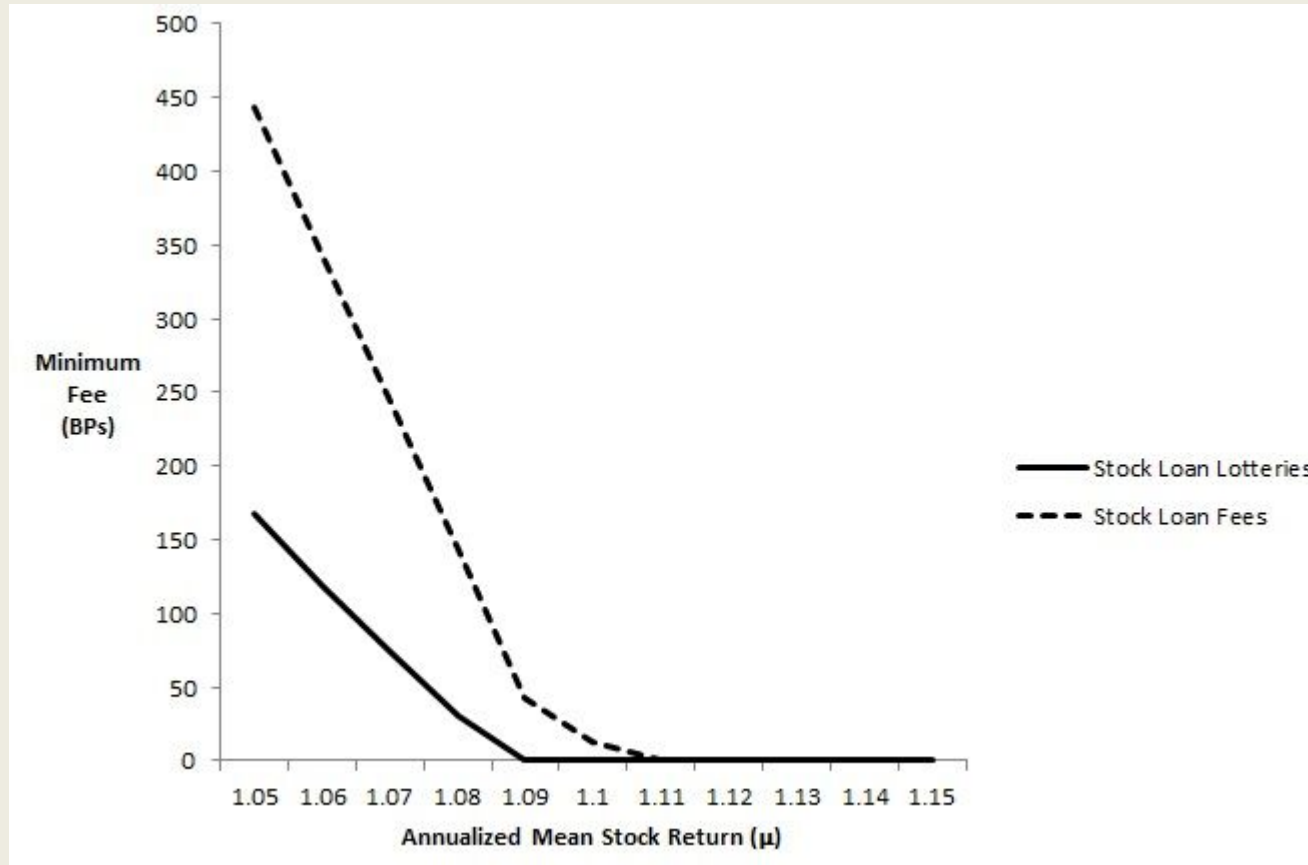
# Realization utility models can generate the disposition effect.

- Barberis and Xiong (2009) realization utility
- $t=0, 1, 2$
- Risk-free asset:  $E(r)=0$
- Risky asset: i.i.d. binomial,  $E(r)>0$
- Investors maximize total expected prospect theory utility over realized gains and losses.
  - Investor chooses:  $x_0, x_u, x_d$
- Solution depends on risky-asset returns:
  - Low returns: No risky investment
  - Moderate returns: Disposition effect
  - High returns: Maximum risky investment

# Long-term investors can receive lending fees or lottery tickets.

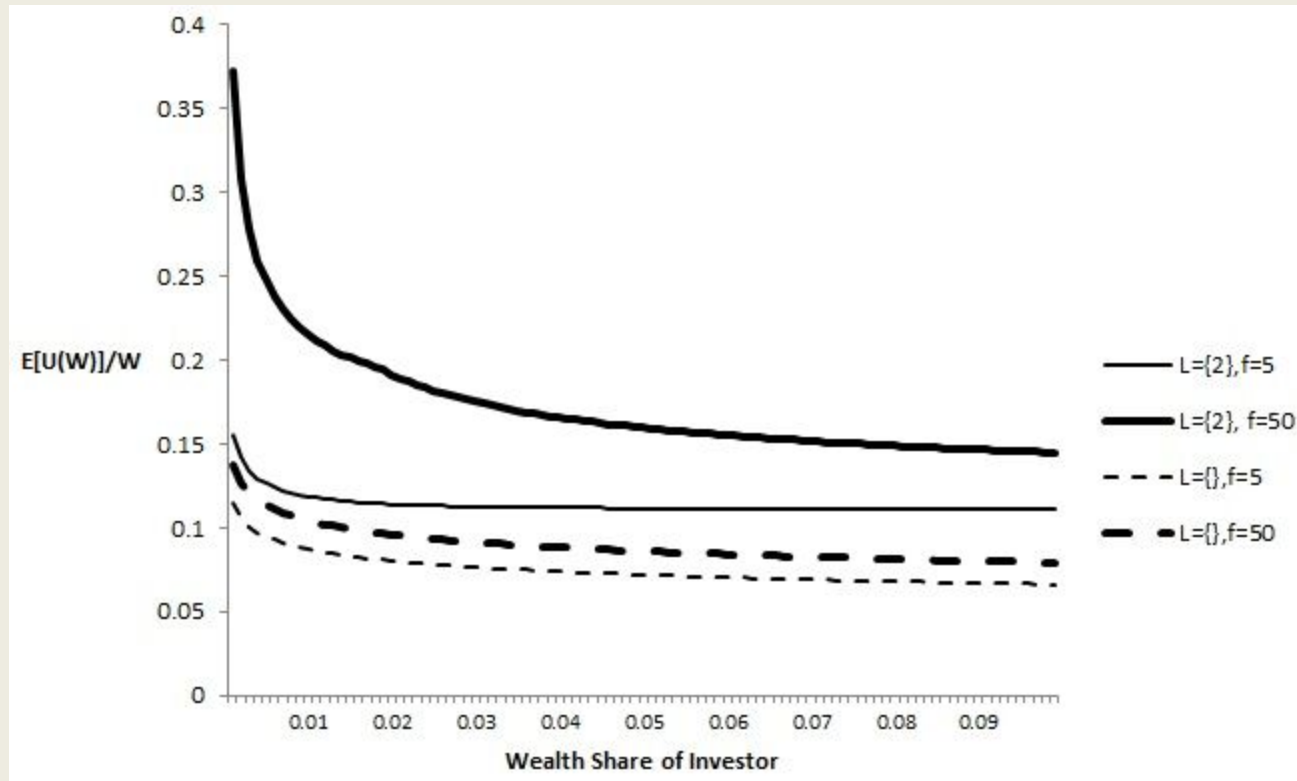
- No profit taking at  $t=1$ :
  - $x_u \geq x_0$
  - $x_d \geq x_0$
- Receive stock loan fees for  $t=0$  holdings:
  - Certain gain of  $P_0 * x_0 * f$  at  $t=2$
- Receive stock loan lottery tickets for  $t=0$  holdings:
  - Probability  $p$  gain of  $\frac{P_0 * x_0 * f}{p}$  at  $t=2$

# Stock loan lottery tickets increase the feasible investment opportunity set.



Moore (2017) Figure 2

# Poor investors benefit the most from stock loan lotteries.

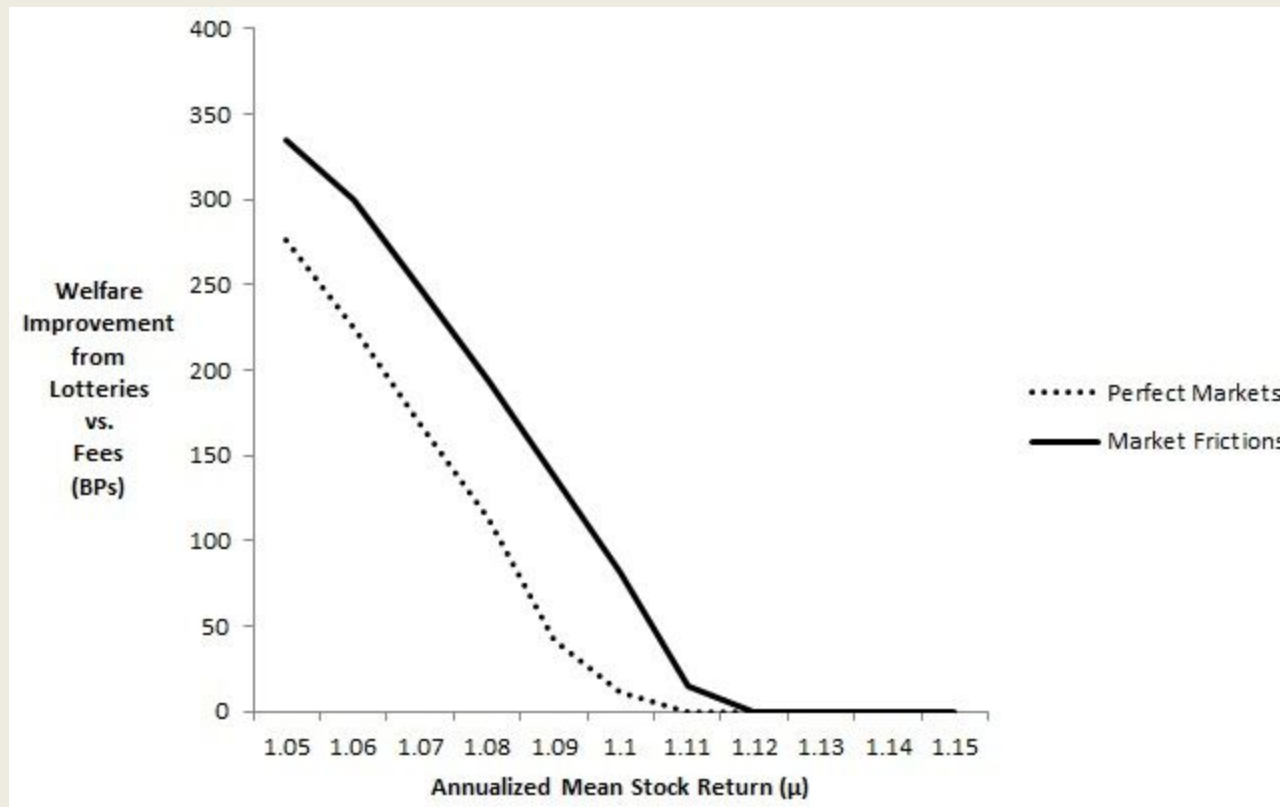


Key Intuition:  $p_i = W_{0,i} / (\sum W_{0,i})$

Moore (2017) Figure 3



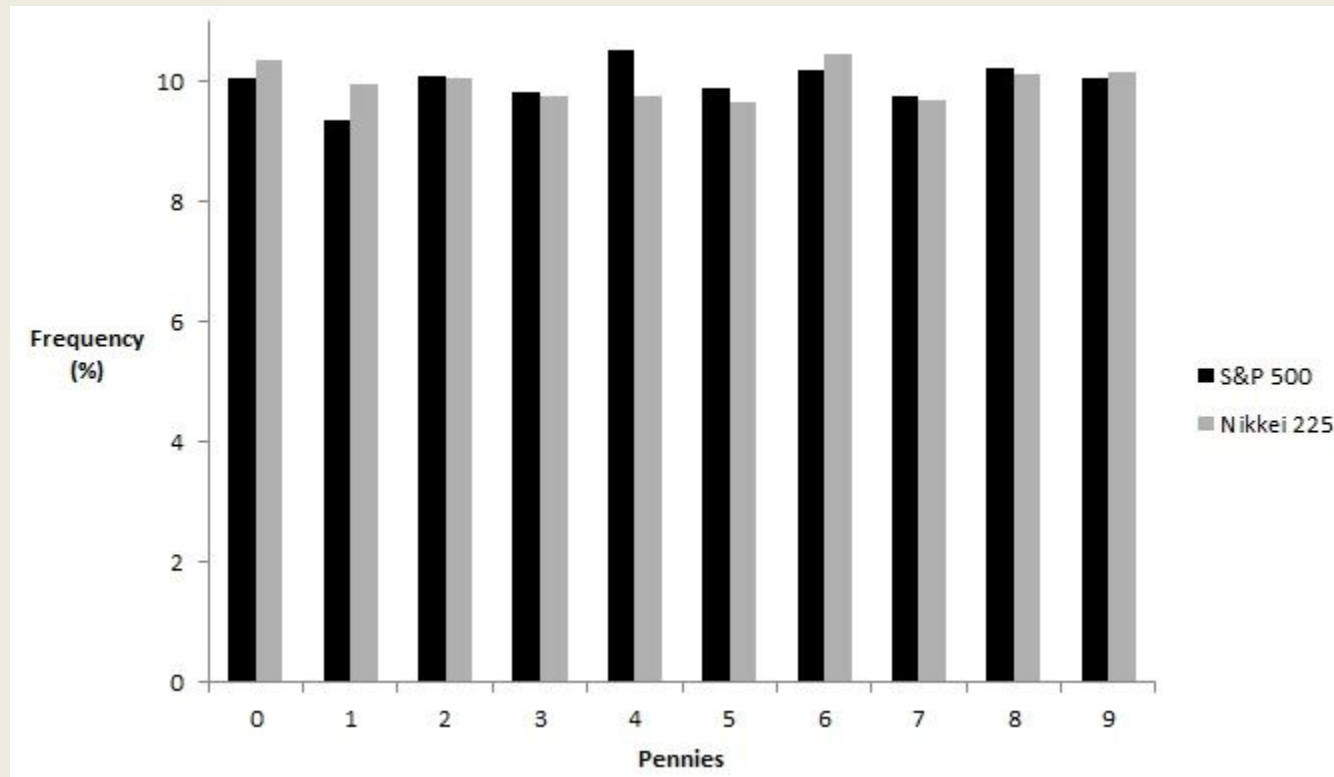
# Trading costs and margin increase the benefits of the lotteries.



Market Frictions: 1.3% Round-Trip Transactions Costs [French (2008)], 50% Margin Requirements (SEC Reg. T)

Moore (2017) Figure 4

# Lottery tickets can be structured as derivatives.



Moore (2017) Figure 5

# Financial innovation can improve outcomes for individual investors.

- Investors would earn higher returns if they would buy and hold.
- What about utility?
- Prospect theory suggests that a lottery is the optimal contract.
  - But what is the optimal lottery?
  - How do you implement the lottery in practice?
- Thank you for your feedback!
  - Email: [jordan.s.moore@gmail.com](mailto:jordan.s.moore@gmail.com)
  - SSRN ID: 2963323