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# Absolute and relative risk aversion: An experimental study

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## Abstract

Kenneth Arrow posed the hypotheses that investors reveal decreasing absolute risk aversion (DARA) and increasing relative risk aversion (IRRA). It is very difficult to empirically test these two hypotheses since one needs to analyze an investor's investment decisions at various points in his/her economic life cycle as the investor's wealth varies. An experimental study is conducted to test these two hypotheses when the subject's wealth varies depending on his/her investment performance. The experiment involves an actual money gain or loss which is indexed to the individual's investment performance. It is found that DARA is indeed strongly supported, but IRRA is rejected.

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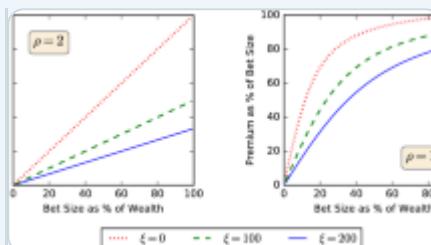
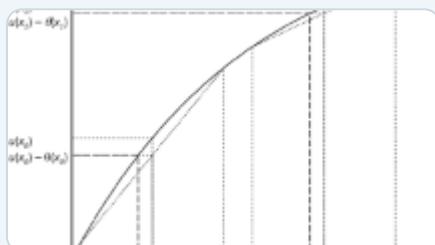
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**Algorithm 1 (Scheme 1)**  
 $i = 1 : M, n = 1 : N$   
if  $b(x_i, u^n) \geq 0$  then  
    Applying the central difference to  $\frac{\partial^2 u}{\partial x^2}$  and the forward difference to  $\frac{\partial u}{\partial x}$  leads to  
     $\alpha_{i, \text{forward}}^n = \frac{u(x_i, u^n)}{\Delta x^2}, \quad \beta_{i, \text{forward}}^n = \frac{u(x_i, u^n)}{\Delta x^2} + \frac{b(x_i, u^n)}{\Delta x}, \quad i = 1, 2, \dots, M$   
else if  $b(x_i, u^n) < 0$  then  
    Applying the central difference to  $\frac{\partial^2 u}{\partial x^2}$  and the backward difference to  $\frac{\partial u}{\partial x}$  leads to  
     $\alpha_{i, \text{backward}}^n = \frac{u(x_i, u^n)}{\Delta x^2} - \frac{b(x_i, u^n)}{\Delta x}, \quad \beta_{i, \text{backward}}^n = \frac{u(x_i, u^n)}{\Delta x^2}, \quad i = 1, 2, \dots, M$   
end if  
else

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