Absolute and Relative Risk Aversion for the Quadratic Utility Function

$$U[W] = W - b\,W^2 \qquad \frac{dU}{dW} = U' = 1 - 2bW \qquad \frac{d^2U}{dW^2} = U'' = -2b$$

$$A[W] = -\frac{U''}{U'} = \frac{2b}{1 - 2bW} \quad \rightarrow \quad \frac{dA}{dW} = \frac{4b^2}{(1 - 2bW)^2} > 0$$

Quadratic Utility has increasing absolute risk aversion –> investors will reduce the amount invested in risky assets as wealth increases.

If absolute risk aversion is increasing then relative risk aversion will also be increasing:

$$R[W] = \frac{2bW}{1 - 2bW} \quad \rightarrow \quad \frac{dR}{dW} = R' = \frac{2b}{(1 - 2bW)^2} > 0$$