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Title: On risk aversion and optimal terminal wealth.

Abstract: Consider a capital market consisting of a risky asset, called a stock, and a secure asset, called a bond, in one period of time. The expected rate of return on the stock is assumed to be strictly greater than the rate of return on the bond. An individual with the initial wealth $x > 0$ invests the amount πx in the risky asset and the amount $(1 - \pi)x$ in the secure asset, where $0 \leq \pi \leq 1$. In addition, $\pi = \hat{\pi}$ is chosen such that the expected utility at the end of the period is maximal. In his book "Essays in the Theory of Risk-Bearing" from 1971 K. J. Arrow proves that $\hat{\pi}$ is a decreasing function of the initial wealth x if the investor has an increasing relative risk aversion as a function of wealth. The main purpose of this paper is to show a similar result in continuous time when the price process of the risky asset is governed by a geometric Brownian motion. The proof is based on standard results from optimal portfolio theory and log-concavity of Wiener measure.