

Problem Set VII

Macroeconomics II

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1 Portfolio choice and C-CAPM

Consider an environment with risk free labor income and two assets: asset 1 is risk free while asset 2 is risky with a positive excess return. Show that an investor chooses a strictly positive exposure to the risky asset.

Hint: Use the Euler Equations and proceed with a proof by contradiction.

2 Asset pricing and bubbles

1. Use the definition of a return $R_{t+1} = \frac{p_{t+1} + d_{t+1}}{p_t}$ to rewrite the Euler equation $u'(c_t) = \beta \mathbb{E}_t[u'(c_{t+1})R_{t+1}]$ as an asset pricing equation.

Consider the special case of linear utility and constant dividend payments d per period in a deterministic, infinite horizon environment.

2. Assuming the absence of bubbles, determine the asset price p_t .
3. Show that $p_t = \left(\frac{1}{\beta}\right)^t b + \frac{\beta d}{1-\beta}$ is a solution to the asset pricing equation. Why is the term $\left(\frac{1}{\beta}\right)^t b$ called bubble component? What happens as t increases?

3 Derivation of the asset pricing kernel

Consider an environment with two periods and two states of nature in the second period, h and l , both of which are equally likely. There are two assets. Asset 1 pays (1, 1) and costs 1. Asset 2 pays (2, 0) and costs 1 as well. Derive the asset pricing kernel and characterize equilibrium consumption.

*I am sure there are many typos in the script. If you find any please send me an email to armando.naef@vwi.unibe.ch