Final Exam
BUSI 521: Asset Pricing Theory
ECON 505: Financial Economics I
Spring 2024

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1 Assume there is a representative investor with constant relative risk aversion ρ in a single period odel. Assume $\log \tilde{c}_1 = \log c_0 + \mu + \sigma\tilde{\varepsilon}$, where $\tilde{\varepsilon}$ is a standard normal random variable and c denotes aggregate consumption. Derive formulas for R_f and $\mathsf{E}[\tilde{R}_m]$ and explain the equity premium puzzle.

2 Consider an investor with an infinite horizon, discount rate δ, and no labor income. Assume investment opportunities (meaning r, μ and σ) depend on a univariate Markov process X that satisfies

$$\mathrm{d}X = \phi(X)\,dt + \nu(X)'\,\mathrm{d}B\,.$$

   a Write down the HJB equation for the stationary value function J.
   b Derive a formula for the optimal portfolio in terms of the partial derivatives of J and the market parameters.
   c Explain the relationship between the portfolio formula and the ICAPM.