Department of Economics

**Examination paper for FIN3005 Asset Prising/Makrofinans**

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**Examination date:** 28.11.2019

**Examination time (from-to):** 4 hours (09.00 – 13.00)

**Permitted examination support material:** C /Flg formelsamling: Knut Sydsæter, Arne Strøm og Peter Berck (2006): Matematisk formelsamling for økonomer, 4utg. Gyldendal akademiske. Knut Sydsæter, Arne Strøm, og Peter Berck (2005): Economists’ mathematical manual, Berlin.
Calculator: Casio fx-82ES PLUS, Casio fx-82EX Citizen SR-270x, SR-270X College or HP 30S.

**Language:** English

**Number of pages (front page excluded):** 1

**Number of pages enclosed:** 0

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Answer all questions. Their relative weights are indicated as points out of 100.

***Question 1 (30 points)***

Define risk aversion and intertemporal substitution and explain how the two concepts relate to each other. Outline how the rate of relative risk aversion (RRA) and elasticity of intertemporal substitution (EIS) can be specified in different models of investor behavior.

***Question 2 (30 points)***

Kiyotaki and Moore analyze how the use of capital as collateral for credit can exacerbate business cycle movements. Outline and explain the main points in their analysis and present your own critique of their model as a description of a part of the real economy.

***Question 3 (40 points)***

Suppose log of the gross equity return can be approximated by the following linear equation:

where is the price of equity and the amount of dividends in period .

Suppose further that consumption equals dividends and that its log gross growth rate develops over time according to:

where is a normally distributed zero-mean white noise and a long-term trend that moves according to

Here, is a normally distributed zero-mean white noise that is uncorrelated with . The standard deviations of and are and respectively.

Suppose also that investors in this model have Epstein-Zin preferences and that the log of the stochastic discount factor is

Finally, suppose the log of the price-dividend ratio can be approximated as the following linear relationship:

1. Describe briefly the kind of puzzle this model is intended to solve.
2. Derive the value that the parameter must have for this model to be internally consistent. Explain the nature of the constraint that you must use for this purpose.
3. Compute the equity premium in this model.
4. Compute the rate of relative risk aversion and the elasticity of intertemporal substitution. [Hint: use the formula for the discount factor with Epstein-Zin preferences:
5. Suppose you wanted to use Mehra and Prescott’s method to estimate the degree of
relative risk aversion that would be needed to explain the equity premium in this model economy. What kind of difficulty would you run into then?