DEPARTMENT OF FINANCE AND STATISTICS

Pricing of Financial Securities and Derivatives (Vasa) | **Time 5h**

Can be taken away

Exam on August 26th, 2010. 12 points for each question. | Calculator allowed

1. Give a short description of the following concepts:

   a. Default rate
   b. Nominal interest rate
   c. Black & Scholes
   d. Clean price
   e. Par yield
   f. Strip

2. Describe the international parity relations discussed on the lectures and in the course literature.

3. Discuss the following techniques used for dealing with interest rate risk: duration matching, contingent immunization, multiperiod immunization and dedicated portfolio. How will convexity affect the usefulness of duration matching (discuss different types of changes in the yield curve).

4. What is meant by an option's delta? Between which maximum and minimum values must a call option's delta be? Which are the max and min values for the delta of a put? Rank the following options with respect to their delta (from highest to lowest): An in-the-money call, an out-of-the money call, an at-the money put and an in-the money put.

5. The convexity of a bond can be computed using the following equation:

$$Convexity = \left[\sum_{t=1}^{n} \frac{t(1+t)*CF_t}{(1+y)^{t+2}}\right] / PV.$$

   Illustrate with your own example how convexity can be used to improve the estimation of a bond's interest rate sensitivity (compared with an estimate obtained by using duration only).

GOOD LUCK !!!