ØKONOMISK KANDIDATEKSAMEN   **December 16, 2009**
Rettevejledning i Asset Pricing Theory

Question 1 (35 %).

(1) It should be explained why $D^t\theta$ is the vector of state dependent returns.
(2) It should be explained why coordinate ψ_j of a state price vector ψ is the marginal price of receiving one unit more of a portfolio in state ω_j.
(3) The proof may follow the one given in the notes.

Question 2 (35 %).

Confer the derivation in the textbook of Hull, chapter 13.

Question 3 (30 %).

(1) It follows since by definition $P(t,T)\exp(y(t,T)(T-t)) = 1$.
(2) Consider the payment stream of the portfolio.
(3) We obtain that

$$f(t, T_1, T_2) = -\frac{\log P(t, T_2) - \log P(t, T_1)}{T_2 - T_1}$$

and

$$f(t, T) = -\frac{\partial}{\partial T}\log P(t, T).$$