

Discrete-Time Mathematical Finance

Assignment sheet 1

Exercise 1 (4 points)

Let \mathcal{M} be a finite market. Let φ^d , $d = 1, \dots, D$, be predictable processes and $v_0 \in \mathbb{R}$. Show that there exists a unique stochastic process φ^0 such that $\varphi = (\varphi^0, \dots, \varphi^D)$ is a self-financing portfolio with $V_0(\varphi) = v_0$.

Exercise 2 (4 points)

Let \mathcal{M} be a finite market. Show that the set \mathcal{H} of replicable contracts is a vector space.