

## Probleme 2

$$1) \text{Cov}(X_t, X_{t+h}) = \begin{cases} \text{cov}(\gamma_t, \gamma_{t+h}), & t, t+h \text{ impares}; \\ \text{cov}(\gamma_t, \gamma_{t+h+1}), & t \text{ impar}, t+h \text{ par}; \\ \text{cov}(\gamma_{t+1}, \gamma_{t+h}), & t \text{ par}, t+h \text{ impar}; \\ \text{cov}(\gamma_{t+1}, \gamma_{t+h+1}), & t, t+h \text{ ambos pares} \end{cases}$$

$$\text{pero } \text{cov}(\gamma_t, \gamma_{t+h+1}) = \text{cov}(\gamma_t, \gamma_{t+h})$$

$$\text{cov}(\gamma_{t+1}, \gamma_{t+h+1}) = \text{cov}(\gamma_t, \gamma_{t+h})$$

...

$$\Rightarrow \text{cov}(X_t, X_{t+h}) = \text{cov}(\gamma_t, \gamma_{t+h})$$

$$2) \mathbb{E}[X_t] = \begin{cases} \mathbb{E}[\gamma_t] = m, & t \text{ impar} \\ \mathbb{E}[\gamma_{t+1}] = m+1, & t \text{ par} \end{cases}$$

$\Rightarrow$  depende de tiempo, no es un  $\text{cte} \Rightarrow$

$\{X_t\}$  no es estacionario débil  $\Rightarrow$   
tampoco estac. estricto.