$$Y_t = C_t + S_t + T_t + \varepsilon_t \quad \text{Aditiva}$$

$$Y_t = C_t * S_t * T_t * \varepsilon_t$$

ESTACIONAL

$$\underbrace{\Theta_P(B^s)\overbrace{\phi_p(B)}^{\text{cíclica}}}_{\text{AR}} Y_t = \underbrace{\Theta_Q(B^s)\overbrace{\theta_q(B)}^{\text{cíclica}}}_{\text{MA}} \epsilon_t$$

$$\underbrace{\phi_p(B)}\cdot Y_t = \underbrace{\theta_q(B)}\cdot \varepsilon_t$$

$$(1-\phi_1 B-\phi_2 B^2-\dots-\phi_p B^p)Y_t = (1-\theta_1 B-\dots\theta_q B^q)\varepsilon_t$$

$$\underbrace{\Theta_P(B)}\phi_p(B)$$

$$(1-\phi_{12}B^{12}-\phi_{24}B^{24}\dots\phi_P B^P)(\dots)Y_t$$

$$\Theta_P(B^s)\phi_p(B)\underbrace{\nabla_s^D\nabla^d Y_t}_{z_t} = \phi_0 + \Theta_Q(B^s)\theta_q(B)\epsilon_t$$

$$z_t = \nabla_s^D \nabla^d Y_t$$

$$\nabla^d = (1-B)^d$$

$$\nabla_s^D = (1-B_s)^D$$

NDIFFS $\rightarrow$

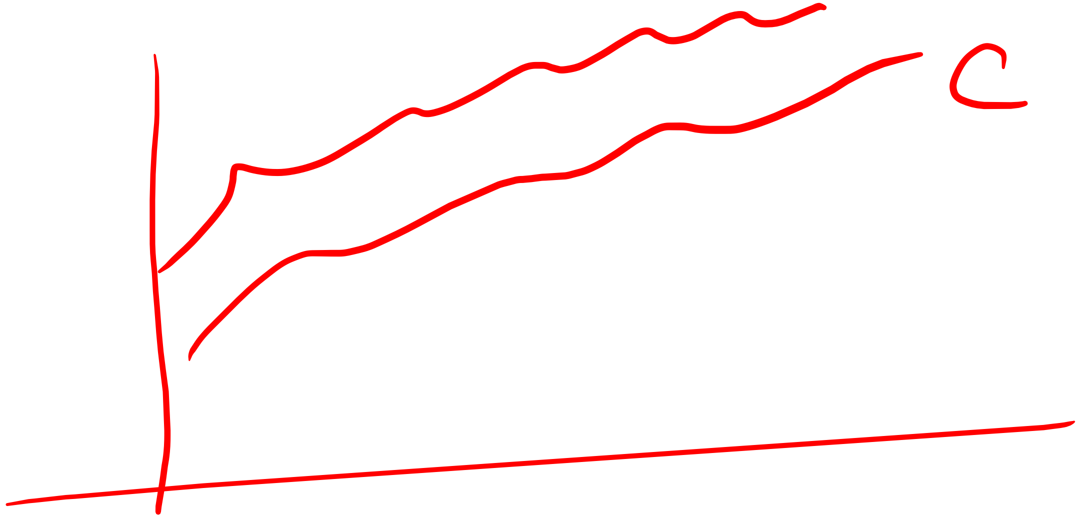
NSDIFFS $\rightarrow$

$$D_{12}(DY_t) = D\,\underline{D_{12}Y_t}$$

$$Y_t : SARIMA(2,1,0)(0,1,3)[12]$$

$$\Downarrow S$$

$$\nabla \nabla_{12} Y_t = Z_t \quad : \underline{SARMA(2,0)(0,3)[12]}$$


C

$Y_t \longrightarrow$ FAC $\longrightarrow$ no tiene dinámica

$Y_t^2 \longrightarrow$ FAC sign. positivas

$\longrightarrow$ ARCH / GARCH

ARCH(q)

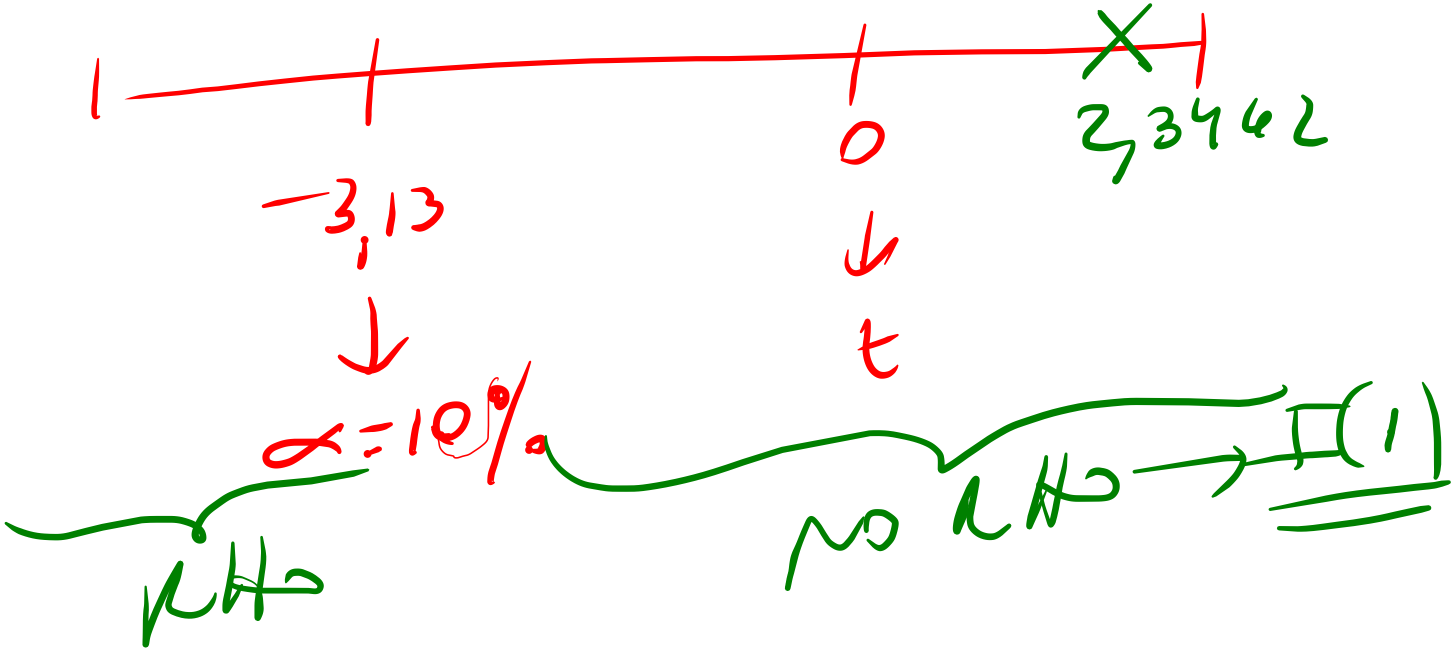
GARCH(p, q)

IGARCH(p, d, q)

F, GARCH

T-GARCH

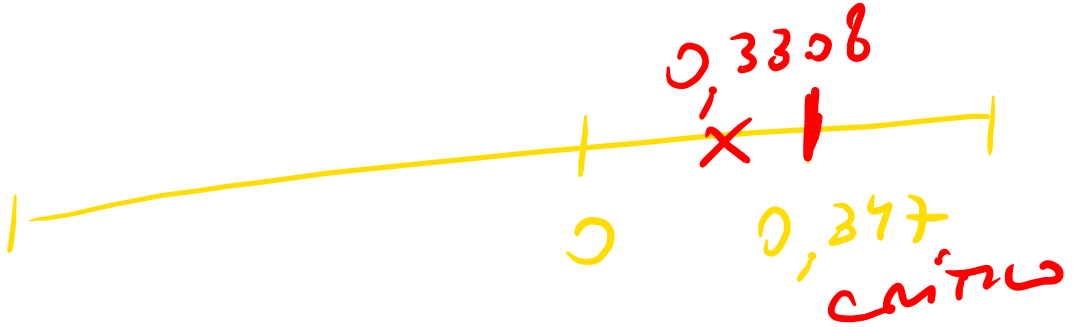
APARCH



-3,13
α = 10%
0
t
2,3442
RH0
no RH0
□(1)

$$y_t = \beta_0 + \beta_1 t + \varepsilon_t \rightarrow \text{linear simple}$$

$$y_t = \beta_0 + \beta_1 t + \beta_2 t^2 + \varepsilon_t$$



$H_0: \mu_1 - \mu_2 = 0$

$H_1: \mu_1 - \mu_2 \neq 0$

$$T^e = \frac{(\bar{x}_1 - \bar{x}_2) - (\mu_1 - \mu_2)}{\sqrt{S_a^2 \cdot \left(\frac{1}{n_1} + \frac{1}{n_2}\right)}} \sim t_{n_1+n_2-2}$$

varianzas desconocidas iguales

$$T^e = \frac{(\bar{x}_1 - \bar{x}_2) - (\mu_1 - \mu_2)}{\sqrt{\dfrac{S_1^2}{n_1} + \dfrac{S_2^2}{n_2}}} \sim t_\nu$$

DESCONOCIDAS DISTINTAS

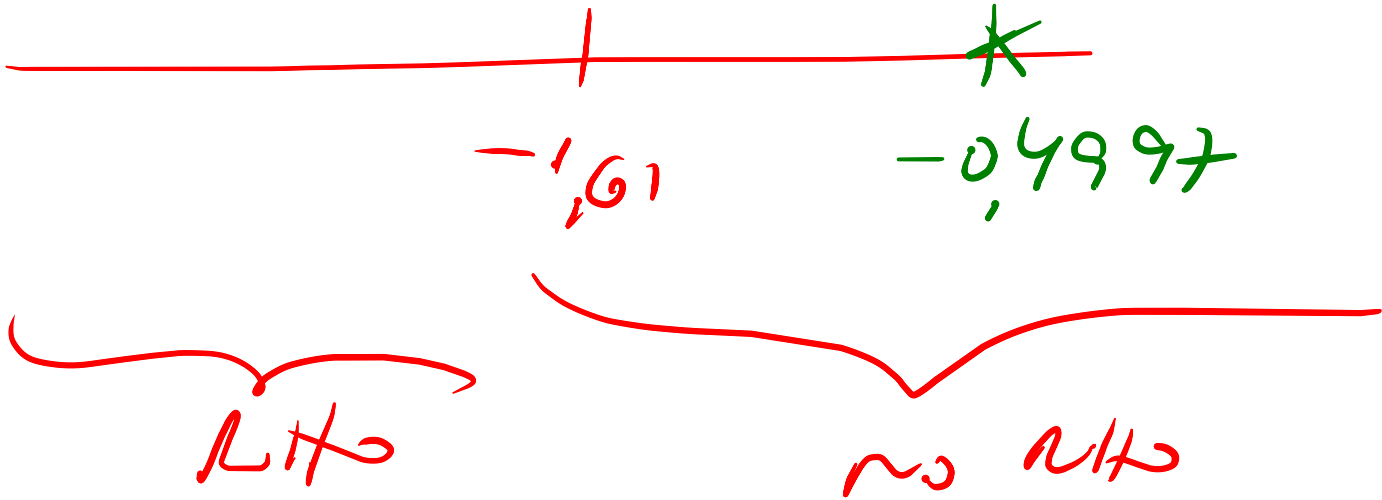
WELCH

$$\nu = \frac{\left(\qquad \right)}{\qquad} - 2$$

$$(1) \quad Y_t = \phi_0 + \phi_1 \cdot Y_{t-1} + \varepsilon_t$$

$$(2) \quad Y_t = \phi_0 + \beta_0 Z_t + \phi_1 \cdot Y_{t-1} + \varepsilon_t$$

$$Z_t = \begin{cases} 1 & \text{si } t > 1620 \\ 0 & \text{si } t \leq 1620 \end{cases}$$


-1,61
-0,4997
Alto
no Alto