CAPM & FF

6 กุมภาพันธ์ 2561 8:01

UR $Y_i = \beta_1 + \beta_2 X_{2i} + \cdots + \beta_k X_k + u_i$

R $Y_i = \beta_1 + u_i$ $\quad \sum u_i^2 = \sum (Y_i - \bar{\beta}_1)^2$

$TSS = ESS + RSS$

$\sum (Y_i - \bar{Y})^2 = \sum (\hat{Y}_i - \bar{Y})^2 + \sum (Y_i - \hat{Y}_i)^2$

$TSS - RSS = ESS$

$H_0: \beta_2 = \beta_3 = \cdots = \beta_k = 0$

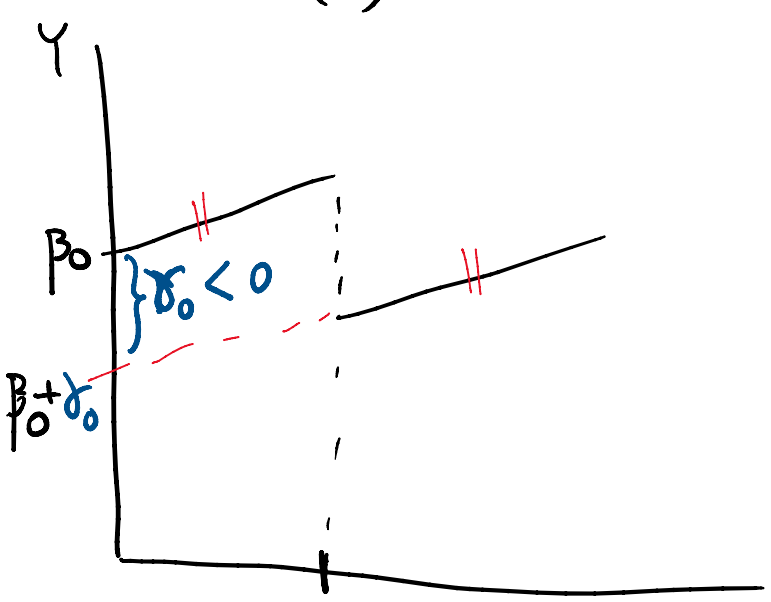
Overall F-test

$$F = \frac{(RSS_R - RSS_{UR})/m}{RSS_{UR}/(n-k)} = \frac{ESS_{UR}/(k-1)}{RSS_{UR}/(n-k)}$$

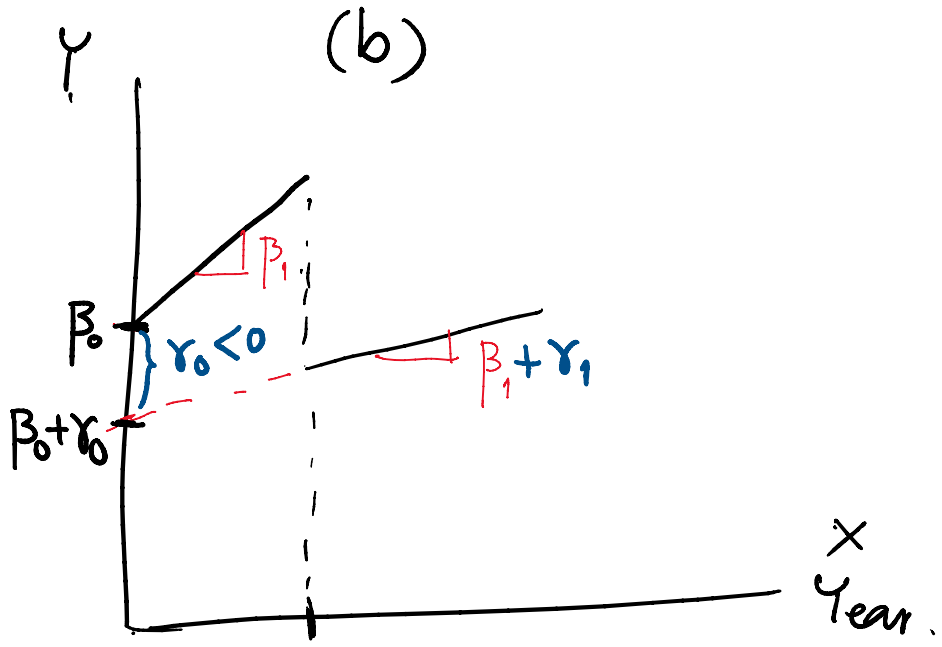
TSS_{UR} $\quad k-1$

Dummy Variable

(a) Intercept Dummy



(b) Intercept & Slope Dummy



$Y_t = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + u_t$

Intercept Dummy

$Y_t = \beta_0 + \gamma_0 D_t + \beta_1 X_{1t} + \beta_2 X_{2t} + u_t$

$D_t = 0$ Before Crisis

$= 1$ After Crisis

Intercept & Slope Dummy

$Y_t = \beta_0 + \gamma_0 D_t + \beta_1 X_{1t} + \gamma_1 X_{1t} D_t + \beta_2 X_{2t} + \gamma_2 X_{2t} D_t + u_t$

Before Crisis ($D_t = 0$)

$Y_t = \beta + \beta X_{1t} + \beta X_{2t} + u_t$

Before Crisis

$$Y_t = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + u_t$$

After Crisis $(D_t = 1)$

$$Y_t = (\beta_0 + \gamma_0) + \beta_1 X_{1t} + \beta_2 X_{2t} + u_t$$

Before Crisis

$$Y_t = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + u_t$$

After Crisis

$$Y_t = (\beta_0 + \gamma_0) + (\beta_1 + \gamma_1) X_{1t} + (\beta_2 + \gamma_2) X_{2t} + u_t$$