

$$\rho_0 = \arg \max_{\rho, \beta_1} \rho 10 + (1 - \rho)(2 + 9\beta_1)$$

$$\text{s.t. } \rho 2 + (1 - \rho)(1 + \beta_1/2) \leq \beta$$

$$r = 2 + 9\beta_1/2$$

$$c = 1 + \beta_1/2$$

$$r = 10$$

$$c = 2$$

