

(On solving for
 $c_{A_2}, c_{B_2}, c_{B_3}$)

$$c_{A_2} = \frac{(r-1)q_2}{(\beta-r)VK}$$

$$c_{B_2} = \frac{c_{A_1}q_1VK(\beta-r) - (1-r)q_2^2}{KVq_2^2(1-r)}$$

$$c_{B_3} = \left(\frac{q_2}{q_E}\right)c_{B_2} = \frac{c_{A_1}q_1(\beta-r)VK - (1-r)q_2^2}{KVq_2^2(1-r)q_E}$$