

## Chapter 16 Equations

### Taylor Rule

$$r_t = \pi_t + \beta \hat{Y}_t + \delta(\pi_t - \pi_t^*) + R^*$$
$$r_t = (1 + \delta)\pi_t + \beta \hat{Y}_t + R^* - \delta\pi_t^*$$

### IS Curve Revisited

$$R_t = s_0 - s_1 Y_t + s_2 G_t$$
$$R_t^* = s_0 - s_1 Y^* + s_2 G_t$$
$$R_t - R_t^* = -s_1(Y_t - Y^*)$$
$$R_t - R_t^* = -s_1 Y^* \left( \frac{Y_t - Y^*}{Y^*} \right)$$
$$R_t - R_t^* = -\sigma \hat{Y}_t$$

### Macro Policy Curve

$$r_t = \pi_t + \beta \hat{Y}_t + \delta(\pi_t - \pi_t^*) + R^*$$
$$r_t - \pi_t - R_t^* = \beta \hat{Y}_t + \delta(\pi_t - \pi_t^*)$$
$$R_t - R_t^* = \beta \hat{Y}_t + \delta(\pi_t - \pi_t^*)$$
$$-\sigma \hat{Y}_t = \beta \hat{Y}_t + \delta(\pi_t - \pi_t^*)$$
$$\hat{Y}_t = \frac{-\delta}{(\beta + \sigma)} (\pi_t - \pi_t^*)$$

Notice when  $\delta$  increases (i.e., the weight on inflation increases), the slope of the Macro Policy curve becomes *flatter* (when drawn in a graph with inflation on the vertical axis and the output gap on the horizontal).

### Price Adjustment Revisited

$$\pi_t = \pi_{t-1} + f \hat{Y}_{t-1} + Z_t$$