Economics 302
Intermediate Macroeconomic Theory and Policy
(Spring 2010)

Lecture 27

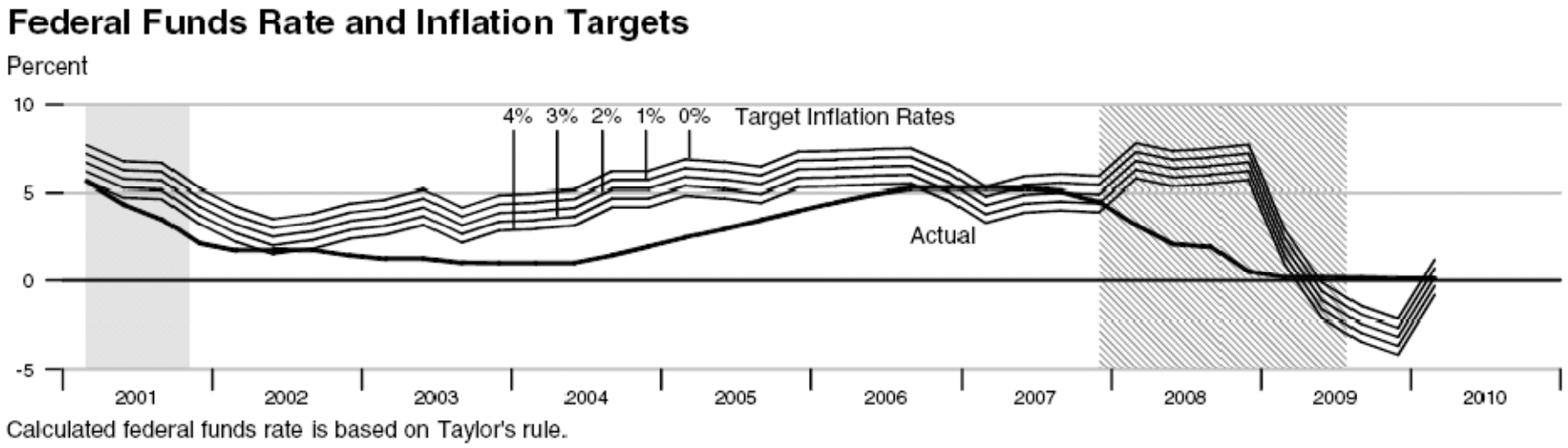
April 28, 2010

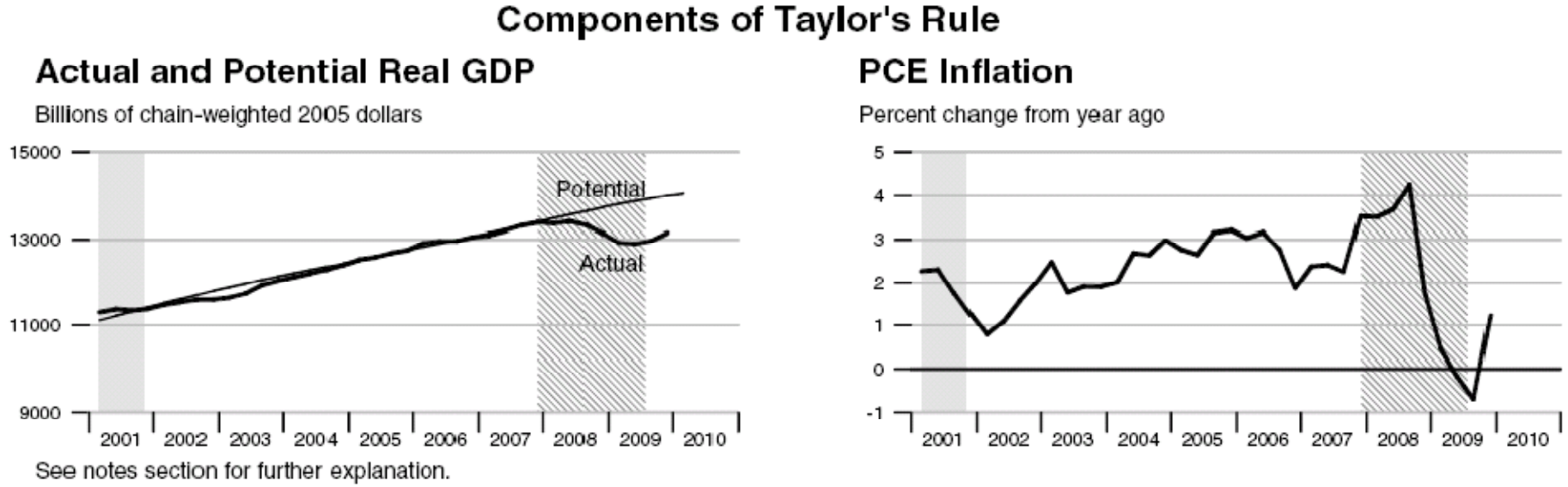
Taylor Rule, Macro Policy curve

$$r_t = \pi_t + \beta\hat{Y}_t + \delta(\pi_t - \pi_t^*) + R_t^* \qquad (16.1)$$

$$r_t = (1+\delta)\pi_t + \beta\hat{Y}_t + R_t^* - \delta\pi_t^* \qquad (16.2)$$

$$\hat{Y}_t = \frac{-\delta}{(\beta+\sigma)}(\pi_t - \pi_t^*) \qquad (16.11)$$





Updated Fig. 16.2; Source: St. Louis Fed, *Monetary Trends*

IS Curve Revisited

$R_t = s_0 - s_1 Y_t + s_2 G_t$ (16.3), IS curve

$R_t^* = s_0 - s_1 Y^* + s_2 G_t$ (16.4); equilibrium real interest rate. Subtract (16.4) from (16.3) to get

$R_t - R_t^* = -s_1 (Y_t - Y^*)$ (16.5); divide and multiply by Y^* to obtain

$$R_t - R_t^* = -s_1 Y^* \left(\frac{Y_t - Y^*}{Y^*} \right)$$ (16.6)

$R_t - R_t^* = -\sigma \hat{Y}_t$ (16.7)

Macro Policy Curve

Subtract inflation and equilibrium real interest rate R* from Taylor rule (16.1) :

$r_t = \pi_t + \beta \hat{Y}_t + \delta(\pi_t - \pi_t^*) + R^*$ (16.1)

$r_t - \pi_t - R_t^* = \beta \hat{Y}_t + \delta(\pi_t - \pi_t^*)$ (16.8); recall definition of R

$R_t - R_t^* = \beta \hat{Y}_t + \delta(\pi_t - \pi_t^*)$ (16.9); combine with IS curve (16.7)

$-\sigma \hat{Y}_t = \beta \hat{Y}_t + \delta(\pi_t - \pi_t^*)$ (16.10) which can also be written:

$$\hat{Y}_t = \frac{-\delta}{(\beta + \sigma)} (\pi_t - \pi_t^*)$$ (16.11)

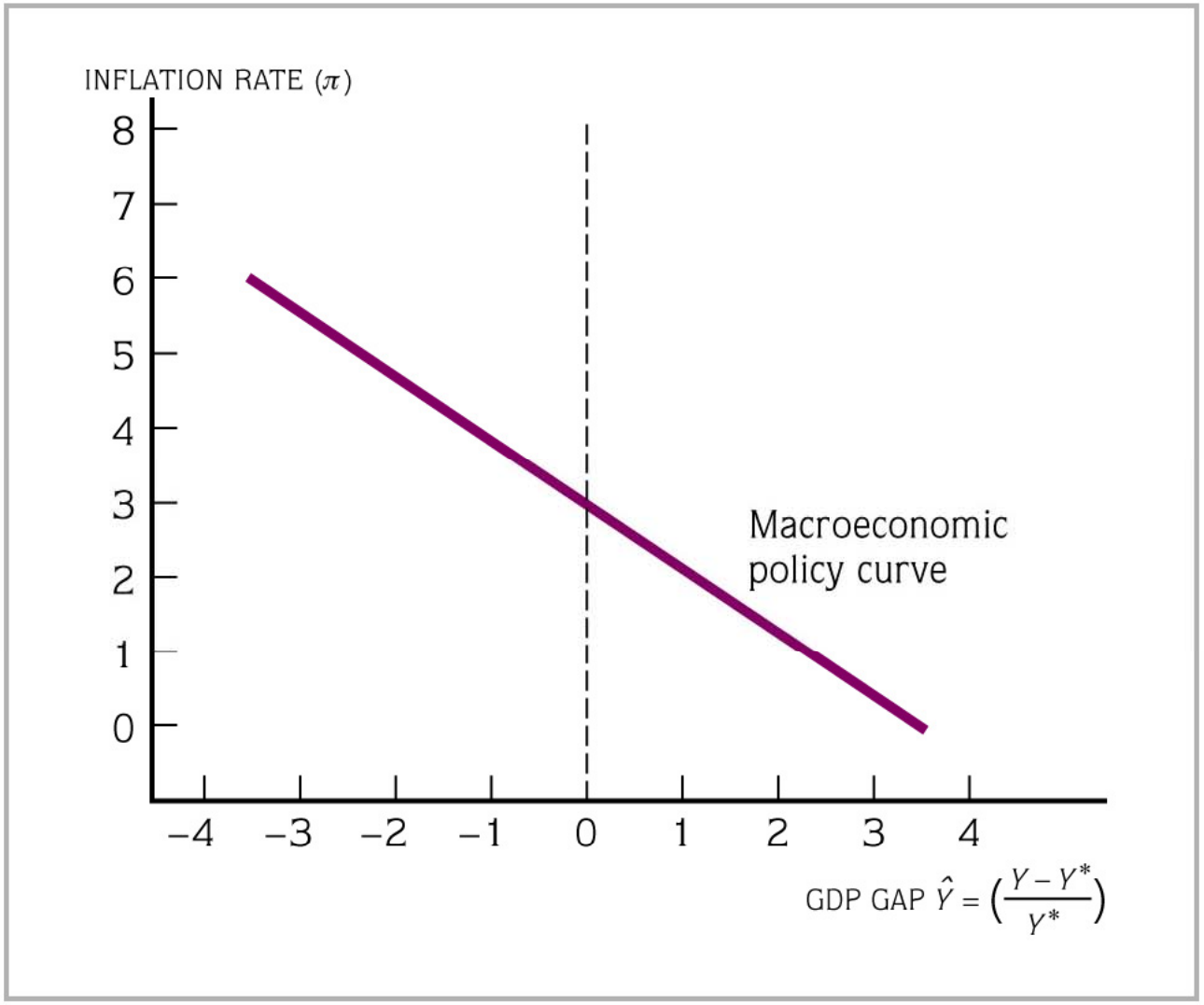


FIGURE 16.5 The Macroeconomic Policy Curve

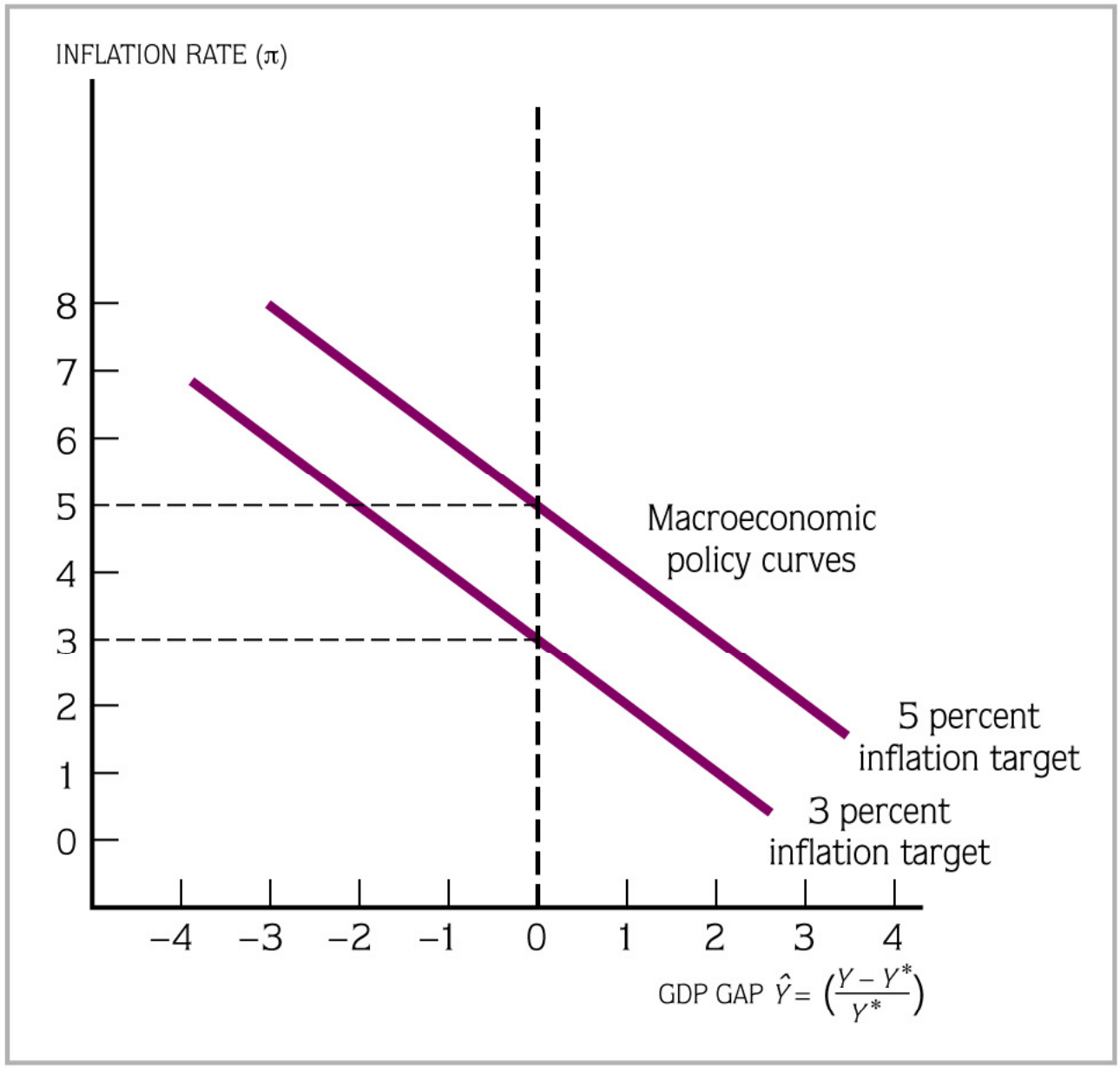


FIGURE 16.6 Shifts in the Macroeconomic Policy Curve

Price Adjustment

Notice that this is also sometimes called the “Phillips Curve”

$$\pi_t = \pi_{t-1} + f\hat{Y}_{t-1} + Z_t \qquad (16.12)$$

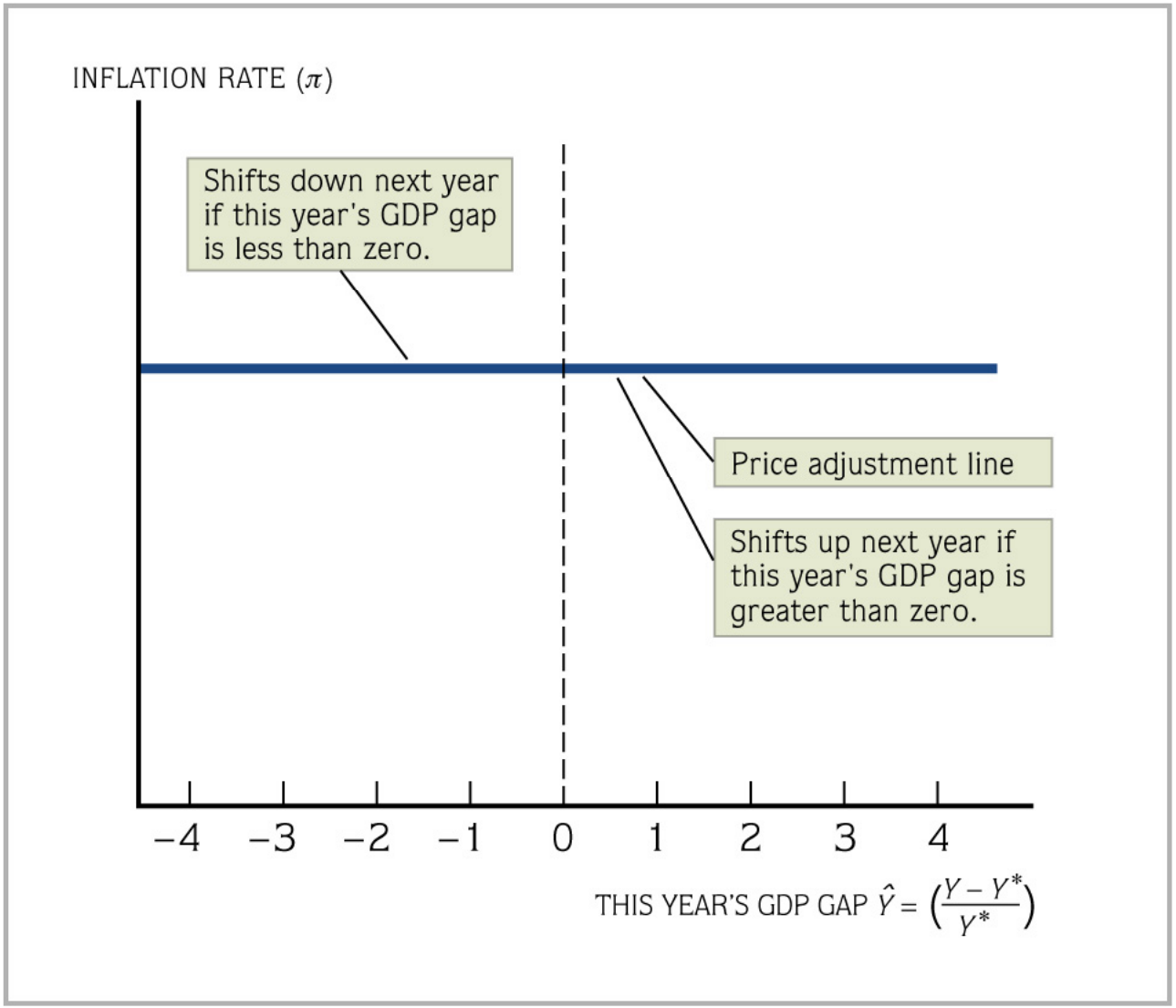


FIGURE 16.7 Price Adjustment Line Determining the Inflation Rate

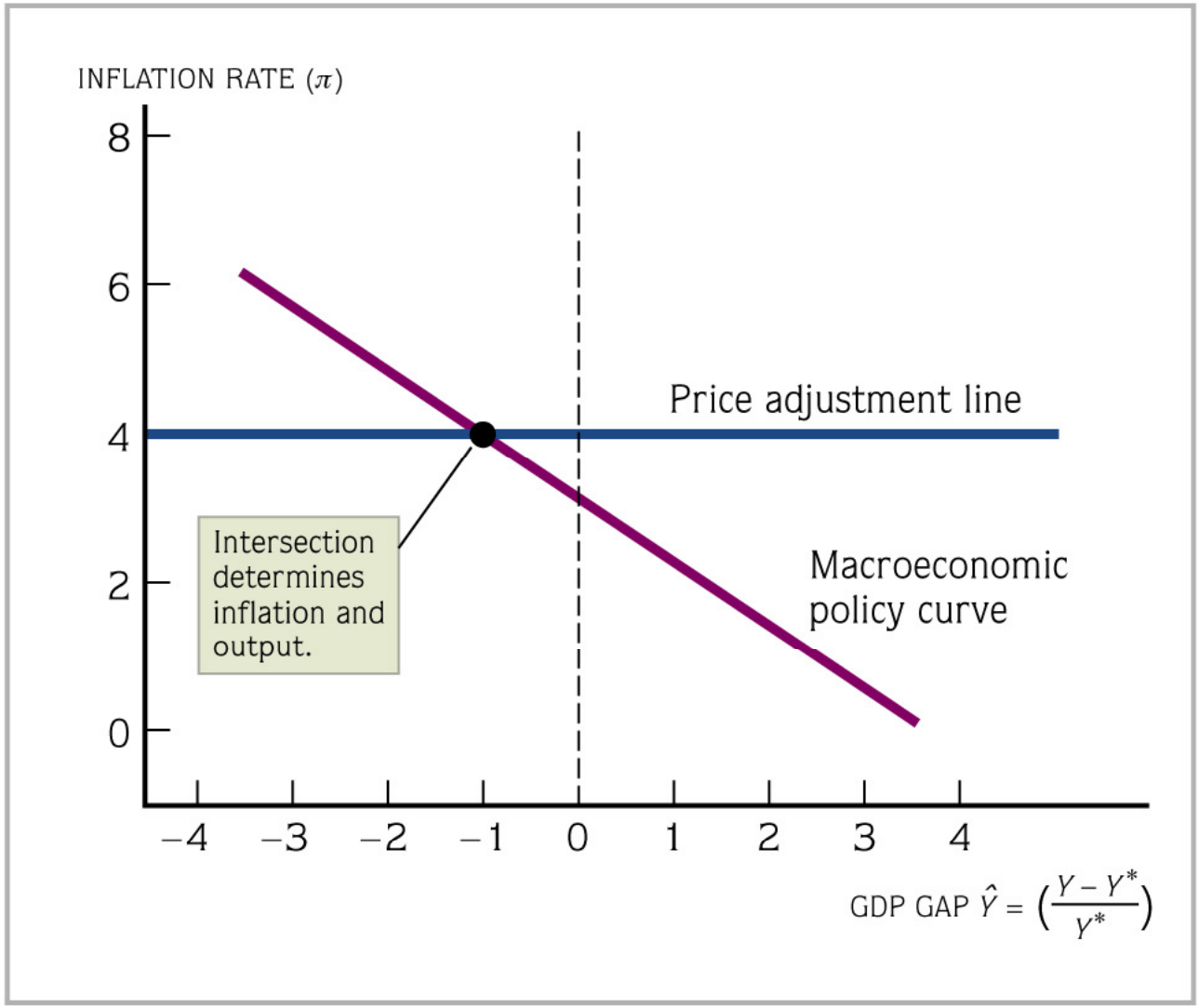


FIGURE 16.8 Simultaneously Determining Inflation and Output

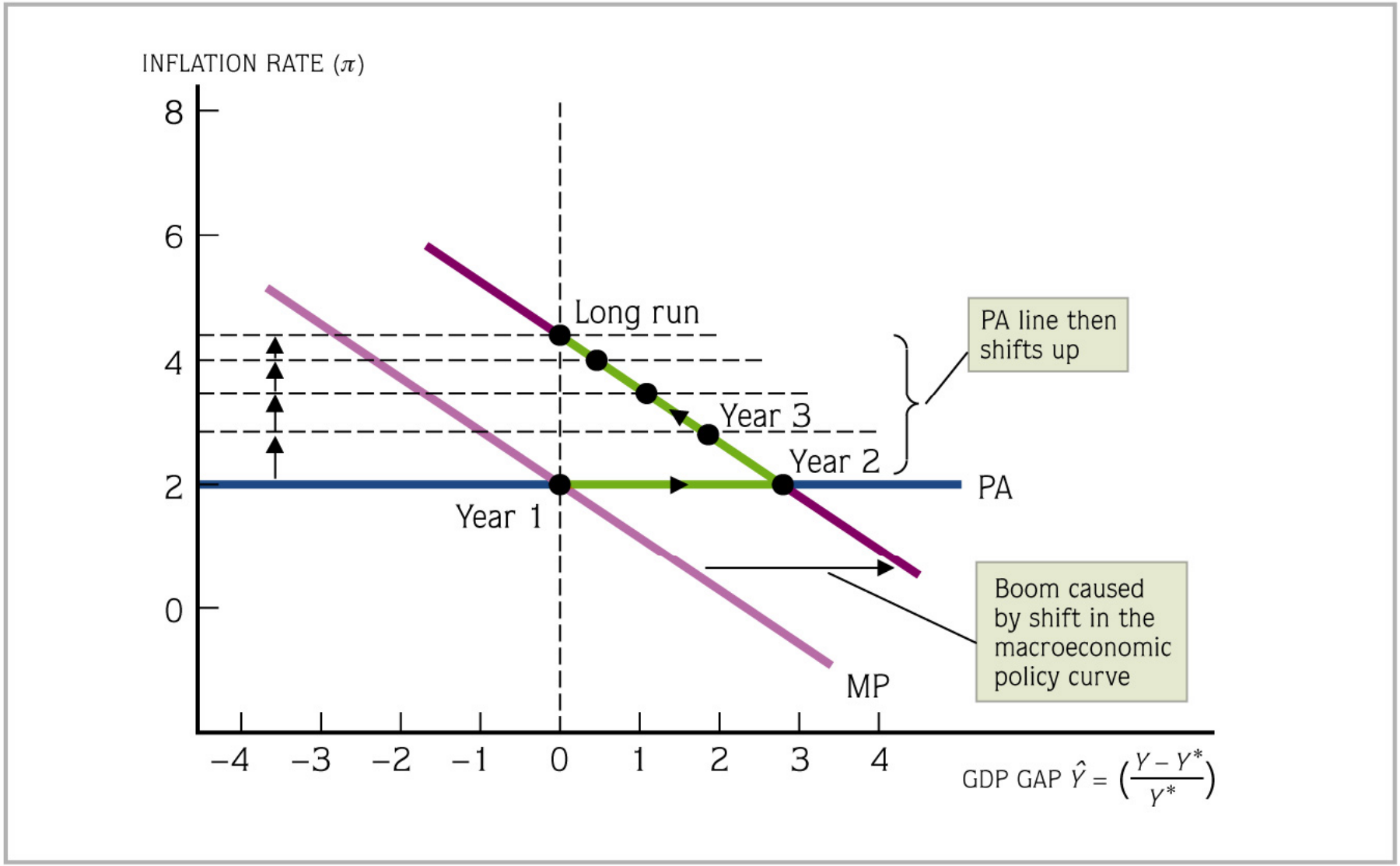


FIGURE 16.9 A Boom

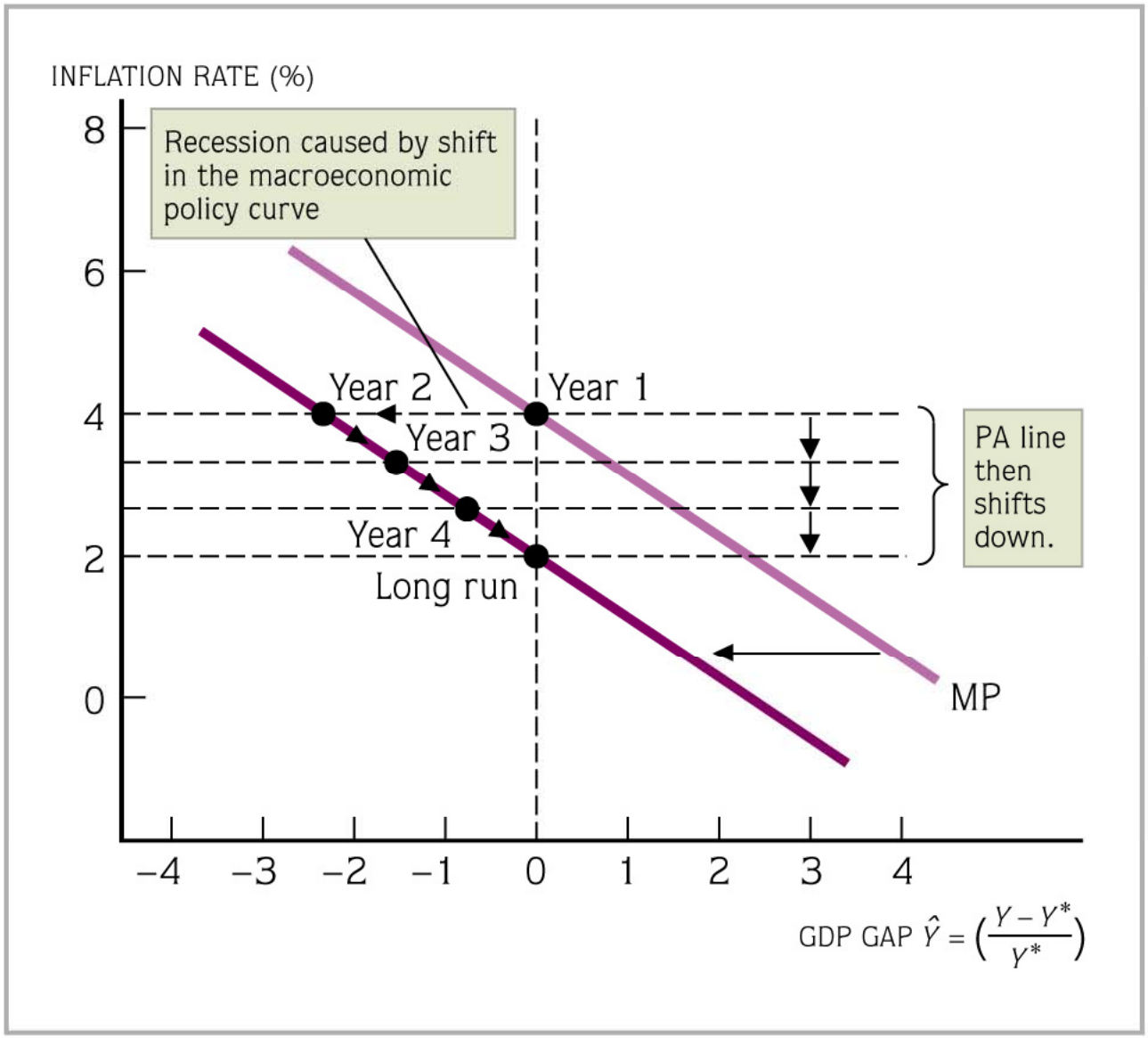


FIGURE 16.10 Disinflation

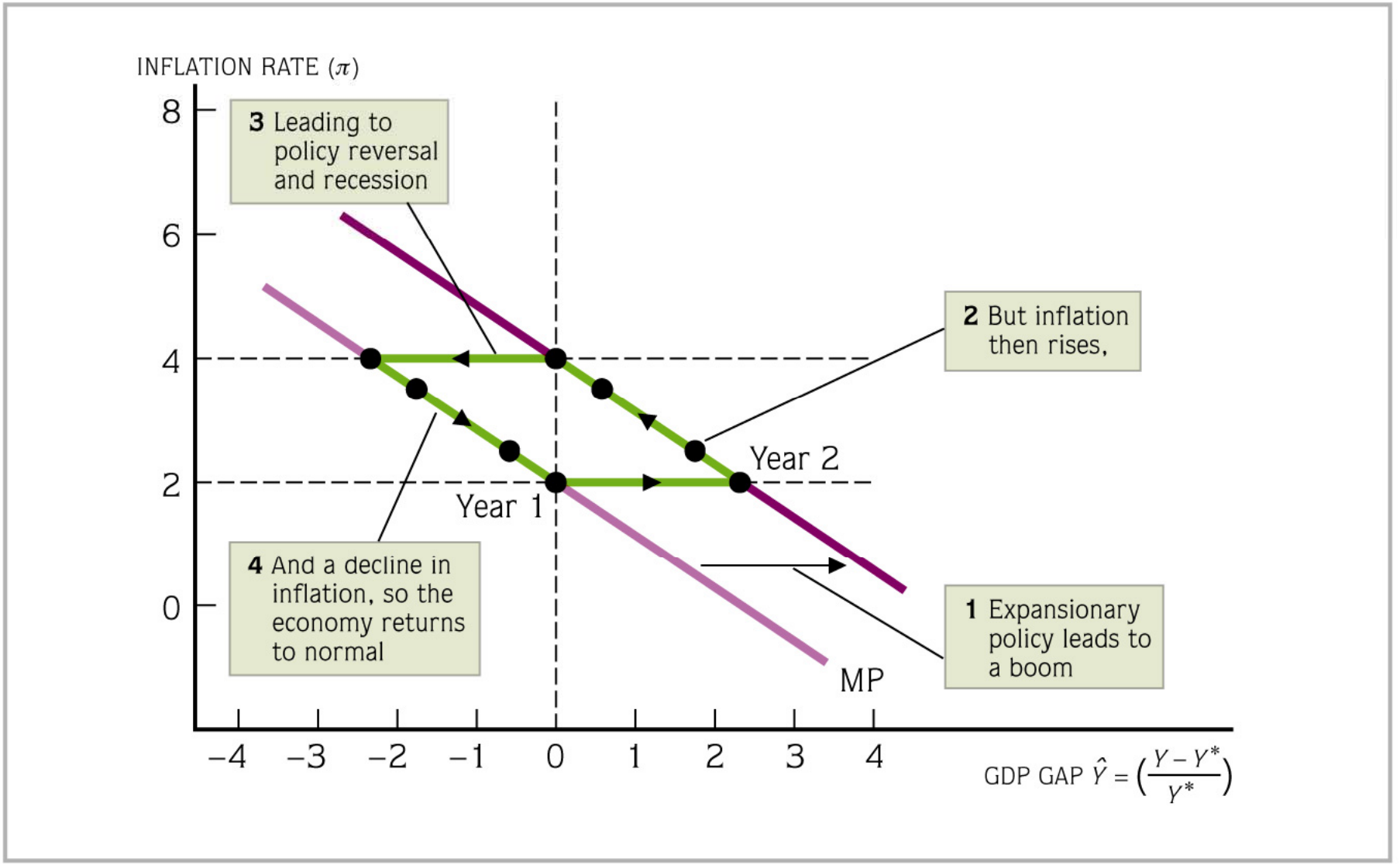


FIGURE 16.11 A Boom-Bust Cycle

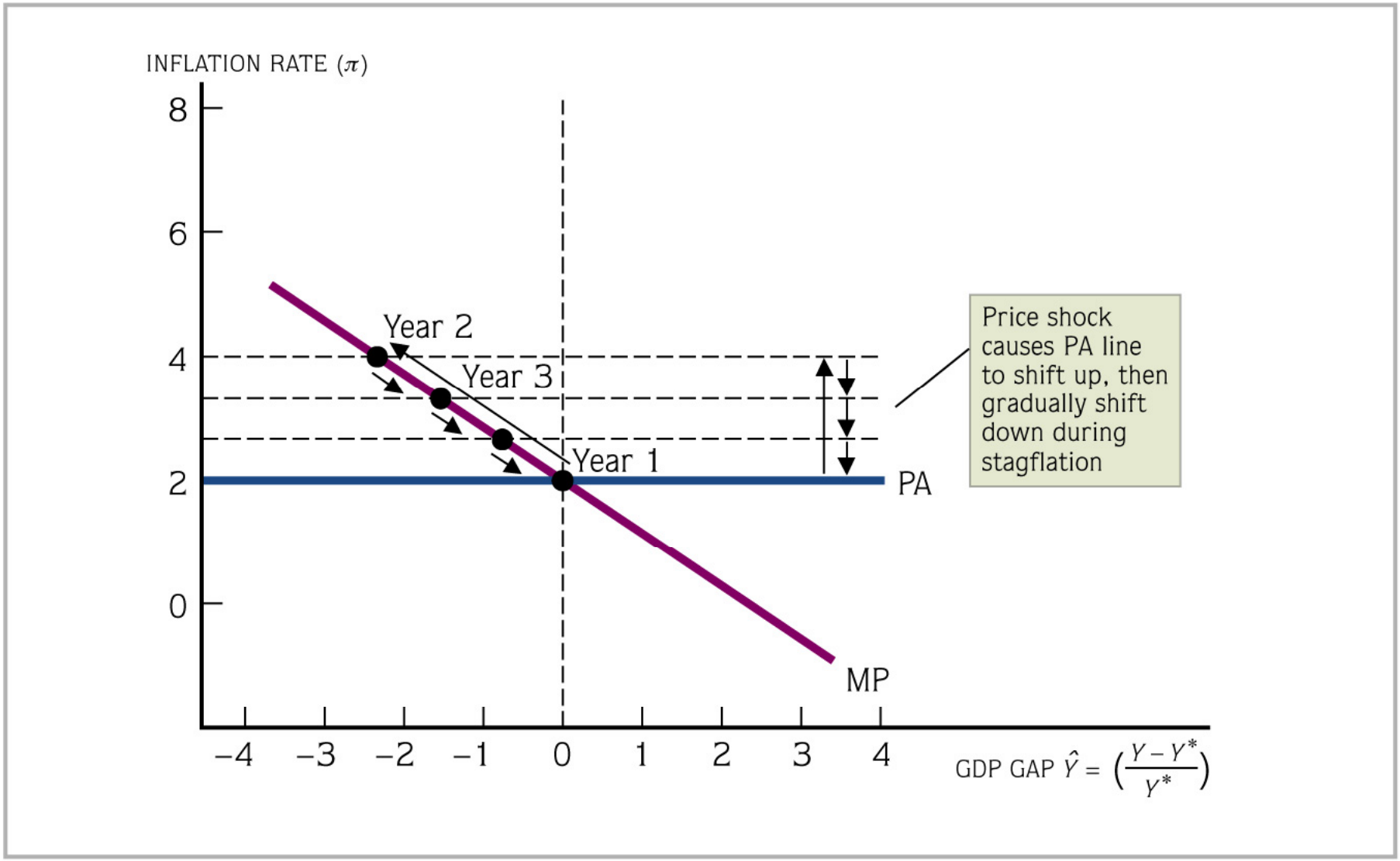


FIGURE 16.12 An Oil Price Shock

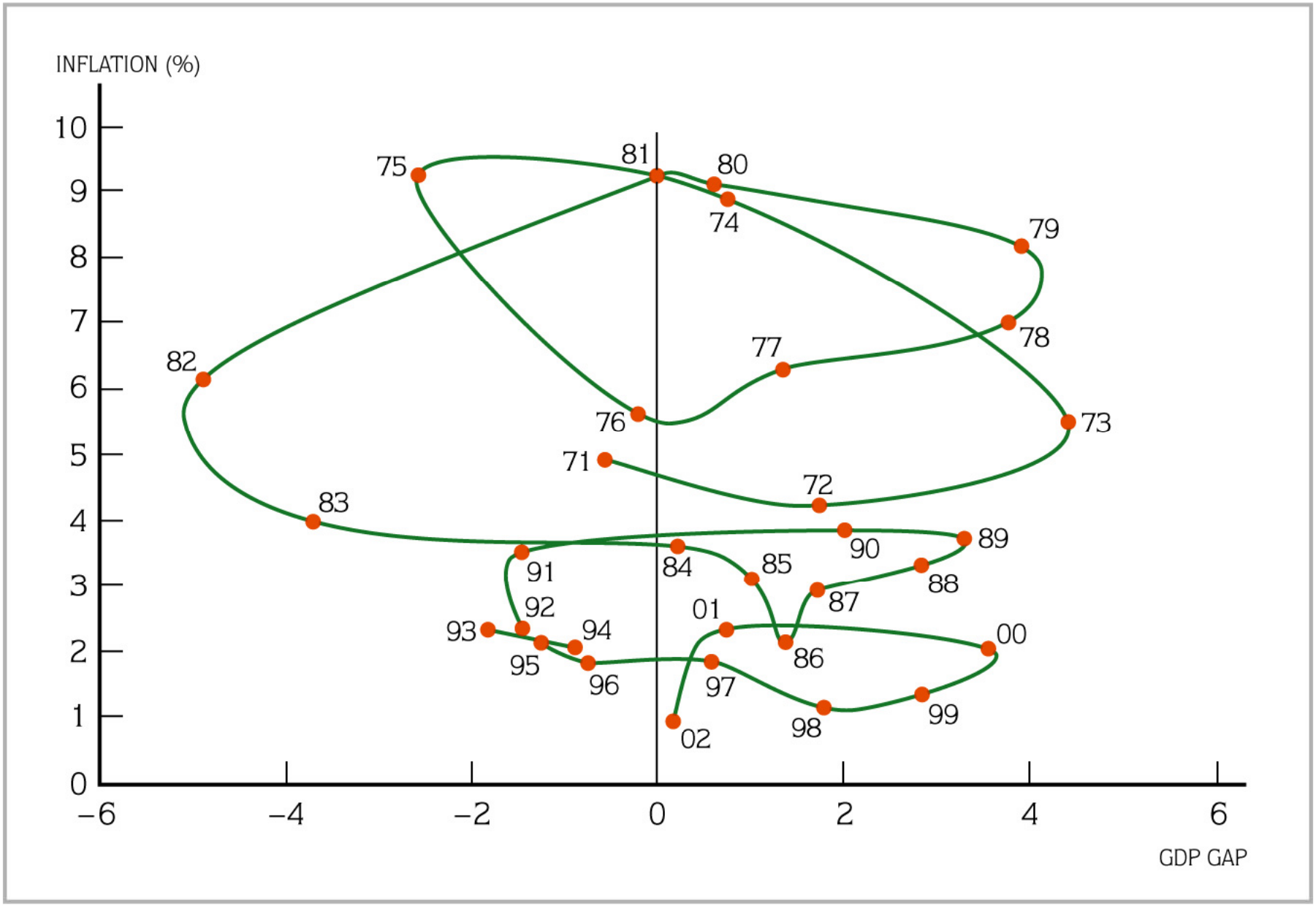
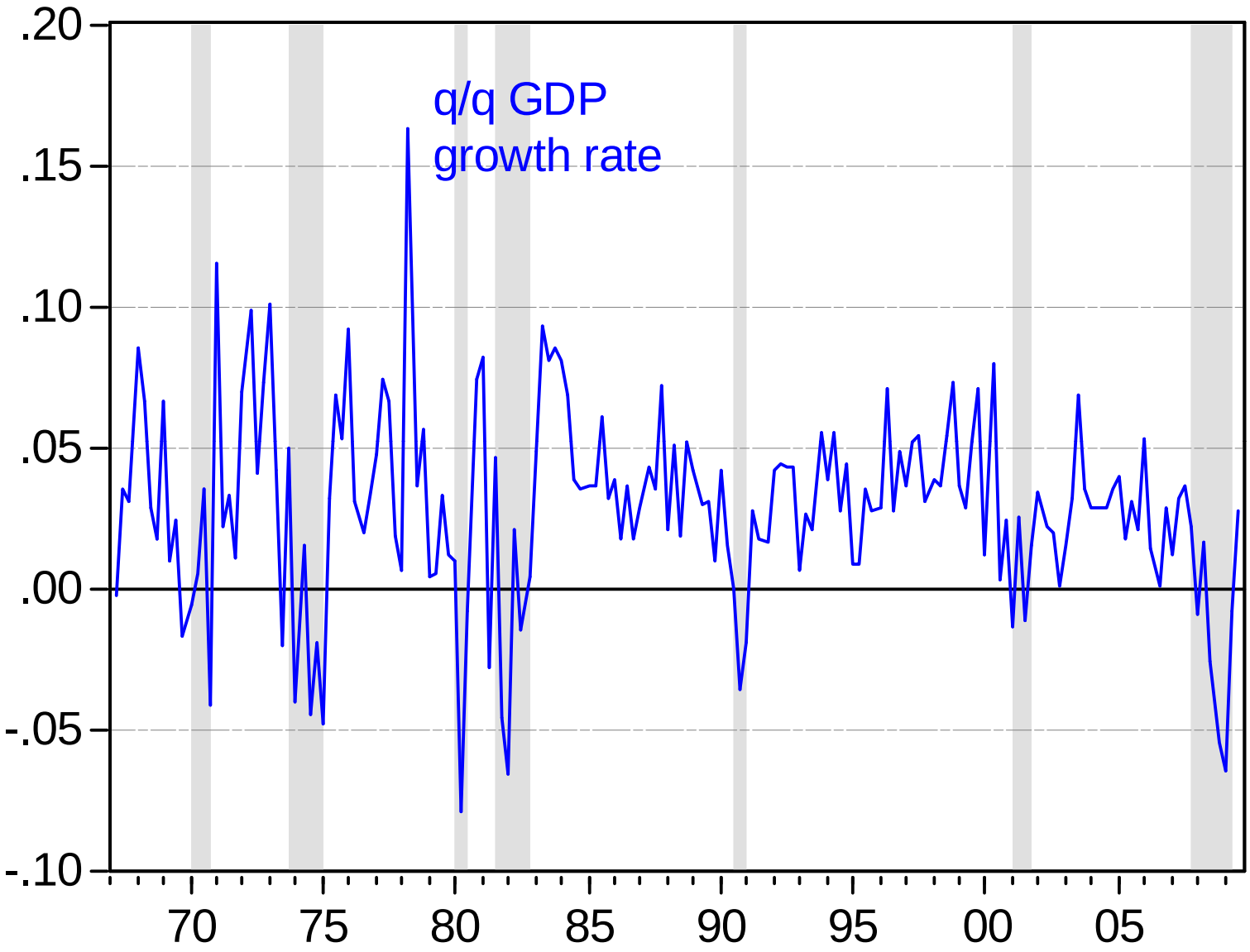
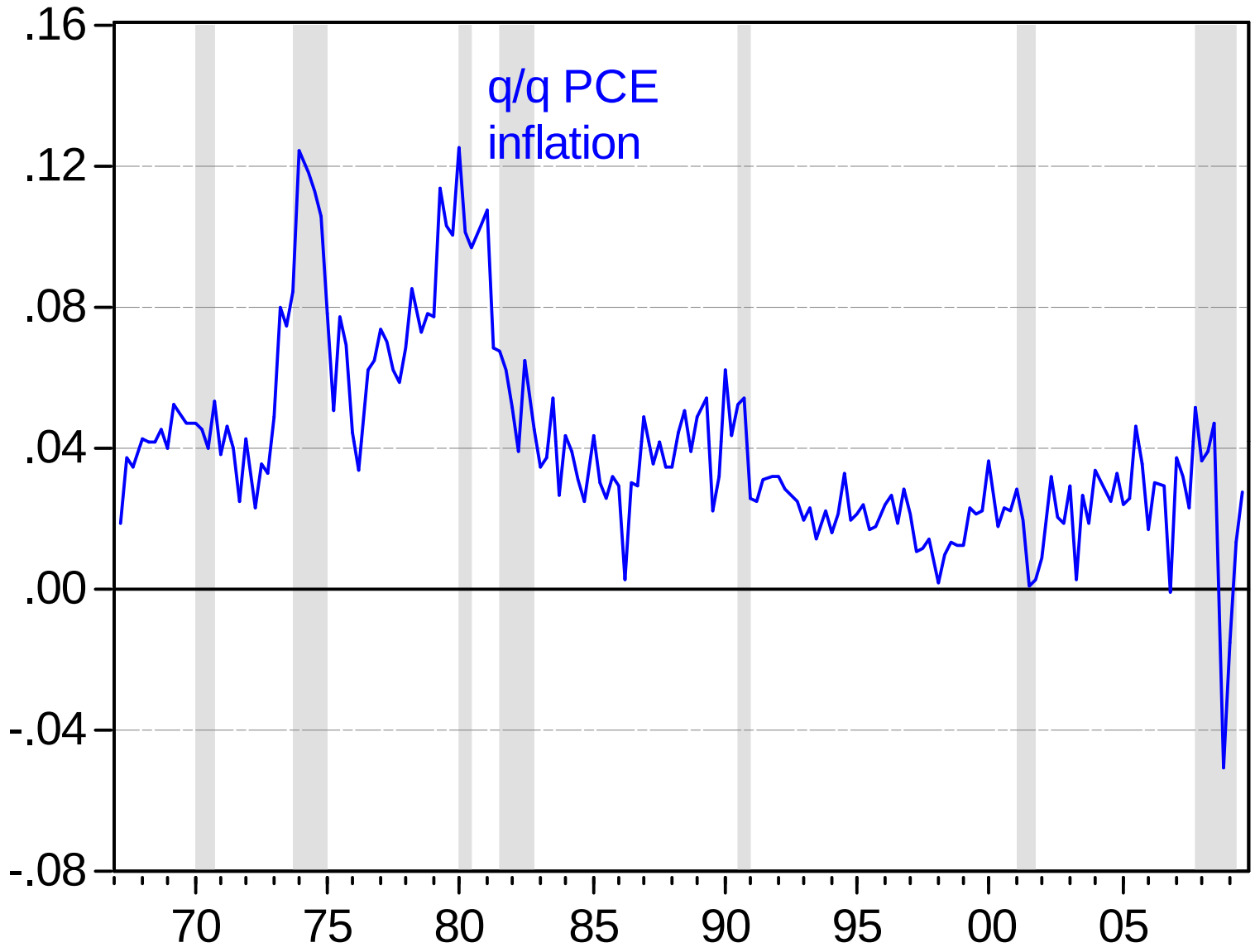


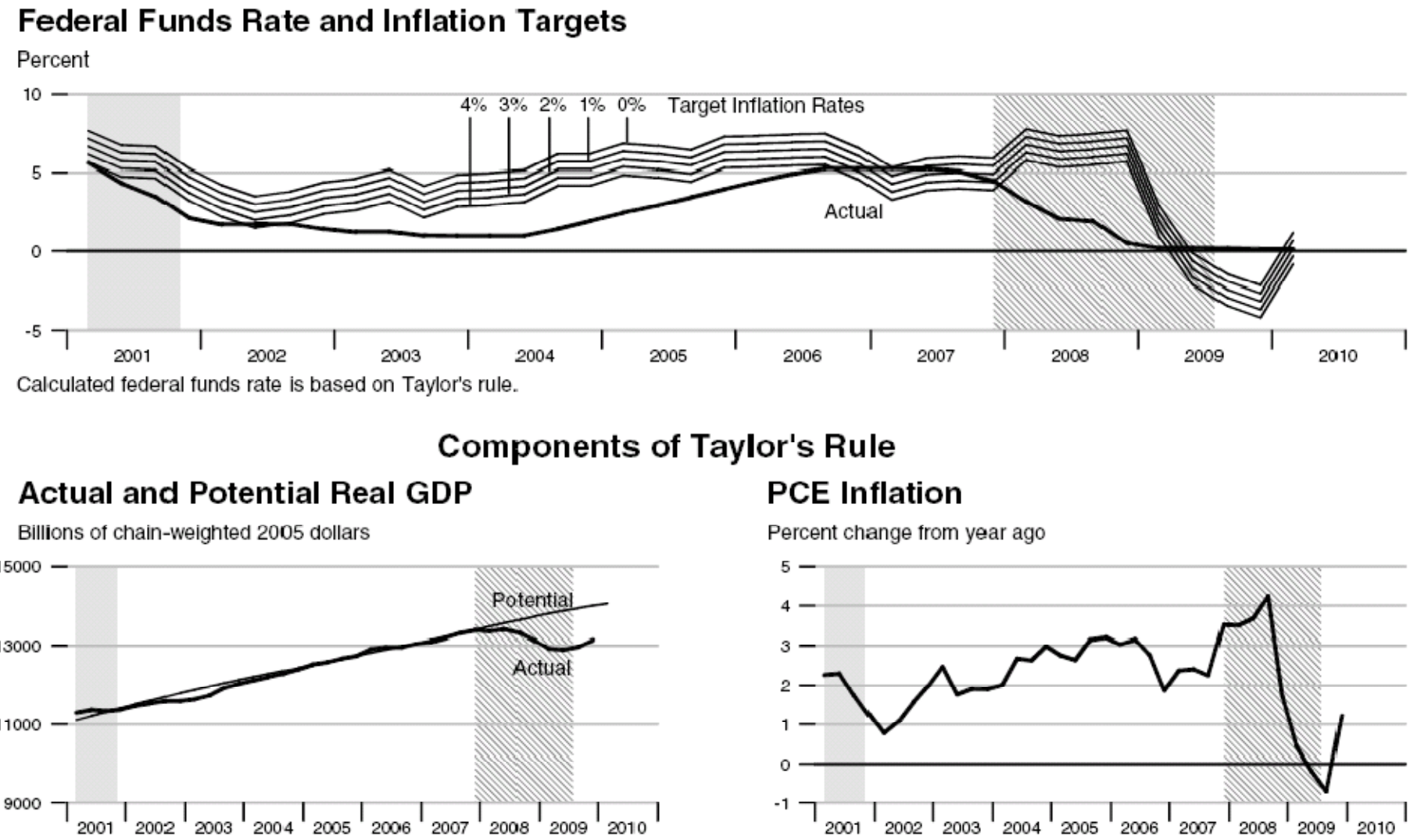
FIGURE 16.13 **Inflation–GDP Gap Loops in the United States, 1971–2002**



Updated Figure 16.14



Updated and revised Figure 16.15 (uses PCE deflator)



Updated Fig. 16.2; Source: St. Louis Fed, *Monetary Trends*