What if you fit the wrong model?

$$Y_i = a_0 + a_1 X_{i1} + a_2 X_{i2} + a_3 X_{i2}^2 + \epsilon_i$$

we fit

$$\hat{Y}_i = \hat{b}_0 + \hat{b}_1 X_{i1} + \hat{b}_2 X_{i2}$$

$\hat{b}_1 = 0$

$$\Sigma_i = Y_i - \hat{Y}_i = (a_0 - \hat{b}_0) + (a_1 - \hat{b}_1) X_{i1} + (a_2 - \hat{b}_2) X_{i2} + a_3 X_{i2}^2 + \epsilon_i$$

instead

$$\epsilon_i + \hat{b}_2 X_{i2} = (a_0 - \hat{b}_0) + (a_1 - \hat{b}_1) X_{i1} + a_2 X_{i2} + a_3 X_{i2}^2 + \epsilon_i$$