

$$dy = \frac{\lambda dP_m D_{12} + \lambda dP_y D_{22} + (-dR + \alpha dP_m + \gamma dP_y) D_{32}}{|D|}$$

$$\frac{dy}{dP_y} = \frac{\lambda D_{22}}{|D|} + \frac{\gamma D_{32}}{|D|} \quad \leftarrow \begin{matrix} dP_m = 0 \\ dR = 0 \end{matrix}$$

$$D_{22} = \begin{vmatrix} 0 & -P_m \\ -P_m & 0 \end{vmatrix} = -P_m^2$$

$$D_{32} = \begin{vmatrix} 0 & -P_m \\ 1 & -P_y \end{vmatrix} = P_m$$

$$D = \begin{vmatrix} 0 & 1 & -P_m \\ 1 & 0 & -P_y \\ -P_m & -P_y & 0 \end{vmatrix}$$

$$= (-1)D_{12} + 0D_{22} - (-P_y)D_{32}$$

$$= - \begin{vmatrix} 1 & -P_y \\ -P_m & 0 \end{vmatrix} + 0 + P_y(P_m)$$

$$= 2P_m P_y$$

$$\frac{dy}{dP_y} = \frac{\lambda (-P_m^2)}{2P_m P_y} + \frac{\gamma P_m}{2P_m P_y}$$

$$\Rightarrow \boxed{\frac{dy}{dP_y} = -\frac{\lambda P_m}{2P_y} + \frac{\gamma}{2P_y}}$$

$$\frac{dy}{dP_y} = \frac{-3(2)}{2(5)} + \frac{5}{2(5)} = \frac{-6}{10} + \frac{5}{10} = \frac{-01}{10}$$

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4) طبيعة السعر y

\leftarrow أتم الاحلال وأتم افضل متعاكسين
 أتم الاحلال \leftarrow أتم افضل
 $\left| \frac{5}{10} \right| < \left| \frac{-6}{10} \right|$