$$d\begin{bmatrix} X_t \\ Y_t \end{bmatrix} = \begin{bmatrix} \sum_{i+j\leq 2} a_{ij}(t) X_t^i Y_t^j \\ \sum_{i+j\leq 2} b_{ij}(t) X_t^i Y_t^j \end{bmatrix} dt + \begin{bmatrix} \Sigma_{11}(X_t, Y_t, t) & \Sigma_{12}(X_t, Y_t, t) \\ \Sigma_{21}(X_t, Y_t, t) & \Sigma_{22}(X_t, Y_t, t) \end{bmatrix} d\begin{bmatrix} W_t^1 \\ W_t^2 \end{bmatrix}$$

$$\Sigma(X_t, Y_t, t)\Sigma(X_t, Y_t, t)' = \begin{bmatrix} \sum_{i+j\leq 2} c_{ij}(t) X_t^i Y_t^j & \sum_{i+j\leq 2} d_{ij}(t) X_t^i Y_t^j \\ \sum_{i+j\leq 2} e_{ij}(t) X_t^i Y_t^j & \sum_{i+j\leq 2} f_{ij}(t) X_t^i Y_t^j \end{bmatrix}.$$