Decomposition.

$$\begin{bmatrix} y_{1,t} \\ y_{2,t} \end{bmatrix} = \begin{bmatrix} \mu_{11} \\ \mu_{12} \\ \mu_{21} \\ \mu_{22} \end{bmatrix} + \begin{bmatrix} y^w_{11,t} \\ y^w_{12,t} \\ y^w_{21,t} \\ y^w_{22,t} \end{bmatrix}$$

$$\begin{bmatrix} y^w_{11,t} \\ y^w_{12,t} \\ y^w_{21,t} \\ y^w_{22,t} \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ \lambda^w_{12} & 0 \\ 0 & 1 \\ 0 & \lambda^w_{22} \end{bmatrix} \begin{bmatrix} \eta^w_{1,t} \\ \eta^w_{2,t} \end{bmatrix} + \begin{bmatrix} \varepsilon^w_{11,t} \\ \varepsilon^w_{12,t} \\ \varepsilon^w_{21,t} \\ \varepsilon^w_{22,t} \end{bmatrix}$$

$$\begin{bmatrix} \mu_{11} \\ \mu_{12} \\ \mu_{21} \\ \mu_{22} \end{bmatrix} = \begin{bmatrix} \alpha^b_{11} \\ \alpha^b_{12} \\ \alpha^b_{21} \\ \alpha^b_{22} \end{bmatrix} + \begin{bmatrix} 1 & 0 \\ \lambda^b_{12} & 0 \\ 0 & 1 \\ 0 & \lambda^b_{22} \end{bmatrix} \begin{bmatrix} \eta^b_1 \\ \eta^b_2 \end{bmatrix} + \begin{bmatrix} \varepsilon^b_{11} \\ \varepsilon^b_{12} \\ \varepsilon^b_{21} \\ \varepsilon^b_{22} \end{bmatrix}$$