

(1)

$$\delta \bar{Q} = \delta Q + \delta \hat{Q}$$

$$\delta Q = \lambda d\sigma$$

adiversionen overkomme

$$\bar{\lambda} d\bar{\sigma} = \delta \bar{Q} = \lambda d\sigma + \hat{\lambda} d\hat{\sigma}$$

$$d\bar{\sigma} = \frac{\lambda}{\bar{\lambda}} d\sigma + \frac{\hat{\lambda}}{\bar{\lambda}} d\hat{\sigma}$$

$$\Rightarrow \bar{\sigma} = \bar{\sigma}(\sigma, \hat{\sigma}) \Rightarrow d\bar{\sigma} = \left(\frac{\partial \bar{\sigma}}{\partial \sigma}\right)_{\hat{\sigma}} d\sigma + \left(\frac{\partial \bar{\sigma}}{\partial \hat{\sigma}}\right)_{\sigma} d\hat{\sigma} \Rightarrow \left\{ \begin{array}{l} \left(\frac{\partial \bar{\sigma}}{\partial \sigma}\right)_{\hat{\sigma}} = \frac{\lambda}{\bar{\lambda}} \\ \left(\frac{\partial \bar{\sigma}}{\partial \hat{\sigma}}\right)_{\sigma} = \frac{\hat{\lambda}}{\bar{\lambda}} \end{array} \right\} = \left. \begin{array}{l} = g_1(\sigma, \hat{\sigma}) \\ = g_2(\sigma, \hat{\sigma}) \end{array} \right\}$$

(2)

$$\bar{\sigma} = \bar{\sigma}(t, \sigma, \hat{\sigma}, x, \hat{x})$$

$$d\bar{\sigma} = \left(\frac{\partial \bar{\sigma}}{\partial t}\right)_{\sigma, \hat{\sigma}, x, \hat{x}} dt + \left(\frac{\partial \bar{\sigma}}{\partial \sigma}\right)_{t, \hat{\sigma}, x, \hat{x}} d\sigma + \left(\frac{\partial \bar{\sigma}}{\partial \hat{\sigma}}\right)_{t, \sigma, x, \hat{x}} d\hat{\sigma} + \left(\frac{\partial \bar{\sigma}}{\partial x}\right)_{t, \sigma, \hat{\sigma}, \hat{x}} dx + \left(\frac{\partial \bar{\sigma}}{\partial \hat{x}}\right)_{t, \sigma, \hat{\sigma}, x} d\hat{x}$$

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$$\left(\frac{\partial \bar{\sigma}}{\partial t}\right)_{\sigma, \hat{\sigma}, x, \hat{x}} = \left(\frac{\partial \bar{\sigma}}{\partial x}\right)_{t, \sigma, \hat{\sigma}, \hat{x}} = \left(\frac{\partial \bar{\sigma}}{\partial \hat{x}}\right)_{t, \sigma, \hat{\sigma}, x} = 0$$

$$d\bar{\sigma} = \left(\frac{\partial \bar{\sigma}}{\partial \sigma}\right)_{t, \hat{\sigma}, x, \hat{x}} d\sigma + \left(\frac{\partial \bar{\sigma}}{\partial \hat{\sigma}}\right)_{t, \sigma, x, \hat{x}} d\hat{\sigma} \Rightarrow$$

$$\left(\frac{\partial \bar{\sigma}}{\partial \sigma}\right)_{t, \hat{\sigma}, x, \hat{x}} = f_1(t, \sigma, \hat{\sigma}, x, \hat{x}) ; \left(\frac{\partial \bar{\sigma}}{\partial \hat{\sigma}}\right)_{t, \sigma, x, \hat{x}} = f_2(t, \sigma, \hat{\sigma}, x, \hat{x})$$

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etgipufur

$$\left. \begin{array}{l} \bar{\lambda} = \bar{\lambda}(t, \sigma, \hat{\sigma}, x, \hat{x}) \\ \lambda = \lambda(t, \sigma, x) \\ \hat{\lambda} = \hat{\lambda}(t, \hat{\sigma}, \hat{x}) \end{array} \right\}$$

$$\frac{\lambda}{\bar{\lambda}} = \frac{\lambda(t, \sigma, x)}{\bar{\lambda}(t, \sigma, \hat{\sigma}, x, \hat{x})} = g_1(\sigma, \hat{\sigma})$$

$$\frac{\hat{\lambda}}{\bar{\lambda}} = \frac{\hat{\lambda}(t, \hat{\sigma}, \hat{x})}{\bar{\lambda}(t, \sigma, \hat{\sigma}, x, \hat{x})} = g_2(\sigma, \hat{\sigma})$$

$$\bar{\lambda}(t, \sigma, \hat{\sigma}, x, \hat{x}) \rightarrow \bar{\lambda}(t, \sigma, \hat{\sigma}, x) \text{ ①}$$

$$\lambda(t, \sigma, x) \rightarrow \lambda(t, \sigma) \text{ ④}$$

$$\bar{\lambda}(t, \sigma, \hat{\sigma}, x) \rightarrow \bar{\lambda}(t, \sigma, \hat{\sigma}) \text{ ②}$$

$$\hat{\lambda}(t, \hat{\sigma}, \hat{x}) \rightarrow \hat{\lambda}(t, \hat{\sigma}) \text{ ③}$$

alderafurinn ondurisa

$$\left\{ \begin{array}{l} \lambda = \lambda(t, \sigma) \\ \hat{\lambda} = \hat{\lambda}(t, \hat{\sigma}) \\ \bar{\lambda} = \bar{\lambda}(t, \sigma, \hat{\sigma}) \end{array} \right. \downarrow \text{regita...}$$

$$\frac{\lambda}{\bar{\lambda}} = \frac{\lambda(t, \sigma)}{\bar{\lambda}(t, \sigma, \hat{\sigma})} = g_1(\sigma, \hat{\sigma})$$

$$\frac{\hat{\lambda}}{\bar{\lambda}} = \frac{\hat{\lambda}(t, \hat{\sigma})}{\bar{\lambda}(t, \sigma, \hat{\sigma})} = g_2(\sigma, \hat{\sigma})$$

$$\lambda(t, \sigma) = \phi(t) f_1(\sigma)$$

$$\bar{\lambda}(t, \sigma, \hat{\sigma}) = \phi(t) f_2(\sigma, \hat{\sigma})$$

$$\hat{\lambda}(t, \hat{\sigma}) = \phi(t) f_2(\hat{\sigma})$$

$$\bar{\lambda}(t, \sigma, \hat{\sigma}) = \phi(t) f_2(\sigma, \hat{\sigma})$$