

$$\hat{\Sigma}_{\chi,t} = \frac{1}{m_t}\left[\begin{array}{cc} \hat{\Sigma}_t & 0 \\ 0 & \frac{\hat{\lambda}_{1,t}\hat{\lambda}_{2,t}}{(\hat{\lambda}_{1,t}-\hat{\lambda}_{2,t})^2} \end{array}\right] \quad \tilde{\Sigma} \triangleq \int_{[0,1]^d} \widetilde{\sigma}(\alpha) \, \widetilde{\sigma}(\alpha)' \, p_\alpha(\alpha) \; \mathrm{d}\alpha. \quad G(\alpha;\widetilde{\sigma}) \triangleq \sqrt{\det\left[\frac{\partial \widetilde{\sigma}'}{\partial \alpha} \frac{\partial \widetilde{\sigma}}{\partial \alpha}\right]}$$

$$\mu(\mathcal{R};\widetilde{\mathcal{I}},w)\triangleq\int_{\widetilde{\sigma}^{-1}(\mathcal{R}\cap\widetilde{\mathcal{I}})} w(\widetilde{\sigma}(\alpha))\,G(\alpha;\widetilde{\sigma})\;\mathrm{d}\alpha.$$

$$\mathcal{L}\left(\widetilde{y}|\widetilde{S}\right)=\sum_{i=1}^n\frac{M_i}{M}\int_{[0,1]^d}\gamma\left(\widetilde{y},\widetilde{\sigma}(\beta)\right)p_\alpha\left(\beta_i^{-1}(\beta)\right)\;\mathrm{d}\beta$$

$$\widetilde{\kappa}(\alpha;\widetilde{S})\triangleq\sum_{i=1}^n1_{\mathcal{A}_i}(\alpha)\,B(\beta_i(\alpha))\widetilde{P}_i$$

Thank you

$$\mathbb{P}(\mathcal{R};\widetilde{\mathcal{I}},w)\triangleq\frac{\mu(\mathcal{R};\widetilde{\mathcal{I}},w)}{\mu(\mathbb{R}^2;\widetilde{\mathcal{I}},w)}.\quad \left\{\begin{array}{rcl} y & = & p+U(h)\,\widetilde{\sigma}(\alpha)+v \\ \alpha & \sim & p_\alpha(\cdot) \\ v & \sim & p_v(\cdot) \end{array}\right.\quad p_\alpha(\alpha)=\frac{w(\widetilde{\sigma}(\alpha))\,G(\alpha;\widetilde{\sigma})}{\int_{[0,1]^d}w(\widetilde{\sigma}(\beta))\,G(\beta;\widetilde{\sigma})\;\mathrm{d}\beta}$$

$$\mathcal{L}_{i,\text{c}}(\widetilde{y})\triangleq\frac{\mathcal{N}(b_i;0,R)}{\mathcal{N}\left(\frac{b'_iR^{-1}a_i}{\sqrt{a'_iR^{-1}a_i}};0,1\right)}\frac{\Delta\Phi(a_i,b_i;R)}{\sqrt{\prod_{j\neq i}P_j}}$$

“The first principle is that you must not fool yourself,
and you are the easiest person to fool.”

— Richard Feynman

$$x_{t|t} \triangleq (I - L_t H)x_{t|t-1} + L_k \chi_t$$

$$P_{t|t} \triangleq (I - L_t H)P_{t|t-1}$$

$$L_t \triangleq P_{t|t-1}H'(HP_{t|t-1}H' + \Sigma_{\chi,t})^{-1}$$