Suggestions

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1. Page 246, Equation(69) Typo

$$Original: dF_t = F_t dt + F_{s1} dS_1 + ...$$

$$Suggestion: dF = F_t dt + F_{s1} dS_1 + ...$$

2. Page 248, Equation(78) Typo

$$Original: dF_t = F_t dt + F_r dr_t + ...$$

$$Suggestion: dF = F_t dt + F_r dr_t + ...$$

3. Page 278, Equation(14) Typo

$$Original: rP_t dt - \delta dt$$

$$Suggestion: rP_t dt + \delta F_s S_t dt$$

4. Page 280, Equation(24) Typo

$$Original: dP_t = (F_t dt + F_s dS_t) - F_s dS_t - S_t dF_s$$

$$Suggestion: dP_t = F_t dt + F_s dS_t + \frac{1}{2}\sigma^2 S_t^2 F_{ss} dt - F_s dS_t - S_t dF_s$$

5. Page 281, Equation(26) Typo

$$Original: dP_t = (F_t dt + F_s dS_t) - F_s dS_t - S_t \left[\left[F_{st} + F_{ss}\mu S_t + \frac{1}{2} F_{sss}\sigma^2 S_t^2 \right] dt + F_{ss}\sigma S_t dW_t \right]$$

$$Suggestion: dP_t = (F_t dt + F_s dS_t) + \frac{1}{2}\sigma^2 S_t^2 F_{ss} dt - F_s dS_t$$
$$- S_t \left[\left[F_{st} + F_{ss}\mu S_t + \frac{1}{2} F_{sss}\sigma^2 S_t^2 \right] dt + F_{ss}\sigma S_t dW_t \right]$$

6. Page 281, Equation(27)–Equation(28) Typo

$$dSt = \mu S_t dt + \sigma S_t dW_t$$
$$dF = F_s dS_t + F_t dt + \frac{1}{2}\sigma^2 S_t^2 F_{ss} dt$$

$$P_t = \theta_1 F + \theta_2 S_t$$
$$P_t = F - F_s S_t$$
$$dP_t = dF - F_s dS_t - S_t dF_s$$

$$dF_s = F_{st} dt + F_{ss} dS_t + \frac{1}{2}\sigma^2 S_t^2 F_{sss} dt$$

$$dP_t = F_s dS_t + F_t dt + \frac{1}{2}\sigma^2 S_t^2 F_{ss} dt - F_s dS_t - S_t dF_s$$

Since the only stochastic term is :

$$S_t dF_s$$

In order for the portfolio to be riskless

$$S_t dF_s = 0$$

$$dF_s = 0$$

$$dF_s = F_{st} dt + F_{ss} dS_t + \frac{1}{2}\sigma^2 S_t^2 F_{sss} dt$$
$$= F_{st} dt + F_{ss}(\mu dt + \sigma dW_t) + \frac{1}{2}\sigma^2 S_t^2 F_{sss} dt$$

Since all the cross product partial derivatives with t and 3^{rd} order partial dervatives should be zero in mean square sense, therefore

$$F_{st} = 0, F_{sss} = 0$$

$$dF_s = F_{ss} S_t(\mu dt + \sigma dW_t)$$

Applying Girsanov Theorem, define
$d\tilde{W}_t = \mu dt + \sigma dW_t$
$E^{\tilde{P}}\left[F_{ss} S_t(\mu dt + \sigma dW_t)\right] = E^{\tilde{P}}\left[F_{ss} S_t d\tilde{W}_t\right] = 0$

$$dPt = F_t dt + \frac{1}{2}\sigma^2 S_t^2 F_{ss} dt$$

$$rP_t dt = F_t dt + \frac{1}{2}\sigma^2 S_t^2 F_{ss} dt$$

$$r(F - F_s St) = F_t + \frac{1}{2}\sigma^2 S_t^2 F_{ss}$$

$$rF = F_t + \frac{1}{2}\sigma^2 S_t^2 F_{ss} + rF_s St$$

7. Page 299, Typo

$$Original : 4^{th} paragraph 6^{th} line Fig.8$$

$$Suggestion : Fig.6$$

8. Page 300, Equation (15),(16),(17) Error

$$Original : dP_t + \delta dt = rP_t dt$$

$$Suggestion : dP_t - \delta F_s S_t dt = rP_t dt$$

$$Original : dP_t = -\delta dt + r_t P_t dt$$

$$Suggestion : dP_t = \delta F_s S_t dt + r_t P_t dt$$

$$Original : rF - rF_s S_t - \delta - F_t - \frac{1}{2}F_{ss}\sigma_t^2 = 0$$

$$Suggestion : rF - rF_s S_t + \delta F_s S_t - F_t - \frac{1}{2}F_{ss}\sigma_t^2 = 0$$

9. Page 314, Equation(8),(9) Typo

$$Original : \int_{-\infty}^{-\infty}$$

$$Suggestion : \int_{-\infty}^{+\infty}$$

10. Page 335, Equation(110) Typo

$$Original : \frac{E^{\tilde{P}}\left[S_{t+\Delta}\right]}{S_t} \cong r_{t\Delta}$$

$$Suggestion : \frac{E^{\tilde{P}}\left[S_{t+\Delta}\right]}{S_t} \cong r_{t\Delta} + 1$$

11. Page 341, Equation(155) Typo

$$Original: ... = E_t^{\tilde{P}}\Bigg[E_T MAX\Big[S_T ...$$

$$Suggestion: ... = E_t^{\tilde{P}}\Bigg[E_T MAX\Big[S_t ...$$

12. Page 439, Equation(18),(19) Typo

$$Original: ... = (r_t dt - \frac{1}{2} ...$$

$$Suggestion: ... = (r_t - \frac{1}{2} ...$$

13. Page 455, Equation(13) Typo

$$P = \theta_1 B^1 - \theta_2 B^2$$

$$dP = \theta_1 dB^1 - \theta_2 dB^2 + B^1 d\theta_1 - B^2 d\theta_2$$

$$= (\frac{\sigma_2\mu_1 - \sigma_1\mu_2}{\sigma_2 - \sigma_1})Pdt$$

$$+B^1\Bigg[(\frac{\sigma_2}{\sigma_2 - \sigma_1})\frac{1}{B_1}dP - (\frac{\sigma_2}{\sigma_2 - \sigma_1})\frac{P}{(B^1)^2}dB_1\Bigg]$$

$$-B^2\Bigg[(\frac{\sigma_1}{\sigma_2 - \sigma_1})\frac{1}{B_2}dP - (\frac{\sigma_1}{\sigma_2 - \sigma_1})\frac{P}{(B^2)^2}dB_2\Bigg]$$

$$dP = (\frac{\sigma_2\mu_1 - \sigma_1\mu_2}{\sigma_2 - \sigma_1})Pdt + dP - (\frac{\sigma_2}{\sigma_2 - \sigma_1})\frac{PdB^1}{B_1} + (\frac{\sigma_1}{\sigma_2 - \sigma_1})\frac{PdB^2}{B_2}$$

$$0 = (\frac{\sigma_2\mu_1 - \sigma_1\mu_2}{\sigma_2 - \sigma_1})Pdt - (\frac{\sigma_2}{\sigma_2 - \sigma_1})P(\mu_1 dt + \sigma_1 dW_t) + (\frac{\sigma_1}{\sigma_2 - \sigma_1})P(\mu_2 dt + \sigma_2 dW_t)$$

$$= (\frac{\sigma_2\mu_1 - \sigma_1\mu_2}{\sigma_2 - \sigma_1})Pdt + (\frac{\sigma_1\mu_2 - \sigma_2\mu_1}{\sigma_2 - \sigma_1})Pdt - (\frac{\sigma_2\sigma_1}{\sigma_2 - \sigma_1})PdW_t + (\frac{\sigma_2\sigma_1}{\sigma_2 - \sigma_1})PdW_t = 0$$

14. Page 464, Equation(46) Typo

$$Original: (\alpha(k - r) - b^2 r\lambda)B_r + ...$$

$$Suggestion: (\alpha(k - r) - br^{\frac{1}{2}}\lambda)B_r + ...$$

15. Page417, Equation(16) Typo

$$Original: E_t^{\pi}\Big[...$$

$$Suggestion: E_t^{\tilde{P}}\Big[...$$