

Errata list

Christophe Dutang

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1 Errata and comments

Page 177 : last line before 4.2.2 should be
The constant term for the ruin probability appearing in Equation (4.3) is $F_{\Theta}(\theta_0) = \operatorname{erfc}(\alpha/2\sqrt{\theta_0})$.

Page 179 : there is a minor typo $dF_{\Theta}(1)$ instead of $dF_{\Theta}(\theta)$.

Page 181 : there is a minor error in Proposition 4.2.3

$$\psi(u) = 1 - \operatorname{erfc}\left(\frac{\alpha}{2\sqrt{\theta_0}}\right) + \frac{1-q}{4q^{u+1}} \sum_{j=0}^{u+1} [\dots].$$

Page 182 : The first item (i) of Theorem 4.3.1 is wrong and should be
(i) If the maximum (in t) of $F_{\Theta}(t) \left(\frac{1}{t^2} + \frac{u}{t}\right)$ is attained at θ_0 , then for all $u > 0$, the ruin probability is bounded

$$\psi(u) \leq F_{\Theta}(\theta_0) + \frac{1}{u} \times \frac{F_{\Theta}(\theta_0)}{\theta_0}.$$

Page 184 : there is a minor typo $f_{\Theta}(0)$ instead of $f_{\Theta}(\theta_0)$ just before (iii).

Page 185 : there is a minor typo $\Gamma(3/2, x, b)$ instead of $\Gamma(-3/2, x, b)$.

Page 185-186 : Some items of Theorem 4.34 are erroneous and should be

(i) For all $u \geq 0$, the ruin probability is lower bounded

$$\bar{F}_{\Theta}(\theta_0) \frac{q(1-q)}{u+2} + \bar{F}_{\Theta}(\theta_0)(1-q) \leq \psi(u).$$

(iii) If in addition f_{Θ} is C^{k-1} almost everywhere on $[0, \theta_0]$ and successive derivatives of f_{Θ} are bounded on $[0, \theta_0]$, then

$$\psi(u) = \bar{F}_{\Theta}(\theta_0) + q(1-q) \sum_{i=0}^{k-1} \frac{(-1)^i \tilde{h}^{(i)}(1)}{(u+2) \dots (u+2+i)} + o\left(\frac{1}{(u+2) \dots (u+2+k-1)}\right),$$

with $\tilde{h}(x) = f_{\Theta}(-\log(1-xq))/(1-xq)^2$.

(iv) If f_Θ is C^∞ on $[0, \theta_0]$, then

$$\psi(u) \underset{u \rightarrow +\infty}{\sim} \bar{F}_\Theta(\theta_0) + q(1-q) \sum_{i=0}^{+\infty} \frac{(-1)^i \tilde{h}^{(i)}(1)}{(u+2) \dots (u+2+i)}.$$

Page 186 : there is a minor typo $J(u) = \int_0^{\theta_0} ((1 - e^{-t})/q)^u dt$.

Page 189 : there is a minor error in Proposition 4.3.5. Expansion in (ii) should be in terms of $1/x^{k+1}$ instead of $1/x^k$. There is also a typo in the proof $\left[f_\Theta(\theta) \frac{e^{-\theta x}}{-x} \right]_0^{+\infty}$.

Page 191 : there is a minor typo $\phi(k) = (1-q) \frac{\lambda^\alpha}{(\lambda+k)^\alpha}$.

Page 202 : there is a minor error in the asymptotic of $\psi(u)$

– when Θ is exponentially distributed

$$\psi(u) = (1-q)^\lambda + \lambda(1-q)^\lambda \frac{1}{u+1} + o\left(\frac{1}{u+1}\right).$$

– when Θ is gamma distributed

$$\psi(u) \underset{u \rightarrow +\infty}{\sim} \frac{\Gamma(\alpha, \lambda\theta_0)}{\Gamma(\alpha)} + \frac{\lambda^\alpha}{\Gamma(\alpha)} (1-q)^{\lambda-1} \theta_0^{\alpha-1} \frac{q}{u+2} + o\left(\frac{1}{u+2}\right).$$

– when Θ is Lévy distributed

$$\psi(u) \underset{u \rightarrow +\infty}{\sim} \operatorname{erfc}\left(\frac{\alpha}{2\sqrt{\theta_0}}\right) + \frac{q\alpha}{2(1-q)\sqrt{\pi}} \theta_0^{-3/2} e^{-\frac{\alpha^2}{4\theta_0}} \frac{1}{u+2} + o\left(\frac{1}{u+2}\right).$$

Page 207 : There is a minor error $d_+ = \sqrt{x} + \sqrt{b}/\sqrt{x}$ and $d_- = \sqrt{x} - \sqrt{b}/\sqrt{x}$ as well as in the expression of $\Gamma(1/2, x, b)$ and $\Gamma(-1/2, x, b)$.