Corrections/amendments to **Dynamic Models for Volatility and Heavy Tails**

p 12. 3 lines up from (1.16) $\varphi_{t+1|t} = (\nu-2)^{1/2}\sigma_{t+1|t}$ should be $\varphi_{t+1|t} = ((\nu-2)/\nu)^{1/2}\sigma_{t+1|t}$.

p 22 last line of sub-section 2.1.2 'The kurtosis is $\Gamma(5/\upsilon)\Gamma(1/\upsilon)$, so for $\upsilon = 1$ the excess kurtosis is nine.' should be

'The kurtosis is $\Gamma(5/\upsilon)\Gamma(1/\upsilon)/(\Gamma(1/\upsilon))^2$, so for $\upsilon = 1$ the excess kurtosis is three.'

p 27 The off-diagonal elements in the information matrix at the top of the page should be multiplied by *minus* 2. Similarly the information matrix in (2.18) should read

$$\mathbf{I}\begin{pmatrix}\mu\\ \lambda\\ \nu\end{pmatrix} = \begin{bmatrix} \frac{\nu+1}{\nu+3}\exp(-2\lambda) & 0 & 0 \\ 0 & \frac{2\nu}{\nu+3} & \frac{-2}{(\nu+3)(\nu+1)} \\ 0 & \frac{-2}{(\nu+3)(\nu+1)} & h(\nu)/2 \end{bmatrix}, \tag{2.18}$$

The same correction should be made on pages 65 and 116.

With the change in (2.18), the entries for λ and ν in Tables 3.1 and 3.2 change (see below)

p 28 The entry for μ in the information matrix is incorrect. Rather than $(\upsilon/2)^2\exp(-2\lambda\upsilon)$ it should be

$$\upsilon^2 2^{-1/\upsilon}\exp(-2\lambda)\Gamma(2-1/\upsilon)/\Gamma(1/\upsilon)$$

NB. For $\upsilon = 1$ it is $(1/4)\exp(-2\lambda)$ whereas for $\upsilon = 2$ it becomes $\exp(-2\lambda)$.

p 37 line 4 should not have absolute values, ie $[E|x_t|)]^2$ should be $[E(x_t)]^2$.

p 41 The condition $|a| < 1$ in Lemmas 9 and 10 is not sufficient. The error comes from incorrectly writing $|a| = |E(x_t)|$ as $|a| = E(|x_t|)$. It should be replaced by $b < 1$. Since $b = E(x_t^2) = E(|x_t|^2) \geq [E(|x_t|)]^2$, it follows that $b < 1$ is sufficient to ensure that $E(|x_t|) < 1$ and this in turn ensures that $E(\ln|x_t|) < 0$ by Jensen's inequality.

p 43 6 lines from bottom, after IID delete 'with zero location and unit scale'

p 46-7 Lemma 10 and Corollary 9 are modified as in the note on Lemma 10.

p 68-9 Tables 3.1 and 3.2. The ASEs need to be amended as discussed in the Note on Lemma 10

p 89 In (3.63) each ∂f should be $\partial \ln f$

p 119 . The ASEs in tables 4.1, 4.4, 4.7 and 4.8 need to be re-calculated as in the Note on Lemma 10.

p 165 The expression

$$E\left[u_t \frac{\partial u_t}{\partial \lambda}\right] = \frac{\nu^3 \xi\varsigma(\xi+\varsigma)\,(\xi+1)}{(\varsigma+\xi+2)(\varsigma+\xi+1)} - \frac{\nu^3 \xi\varsigma}{(\xi+\varsigma+1)}$$

should be

$$E\left[u_t \frac{\partial u_t}{\partial \lambda}\right] = \frac{\nu^3 \xi\varsigma(\xi-\varsigma)\,(\xi+1)}{(\varsigma+\xi+2)(\varsigma+\xi+1)}$$

and in the proof, $(\xi+\varsigma)^2$ in the first right hand side term of

$$E\left[u_t \frac{\partial u_t}{\partial \lambda}\right] = \nu^3(\xi+\varsigma)^2 E[b_t^2(1-b_t)] - \nu^3(\xi+\varsigma)E[b_t(1-b_t)]$$

should be $2(\xi+\varsigma)$.

p 216 - (7.17) should be

$$u_{\gamma t} = \frac{1}{4}(x_{1t}+x_{2t})^2 \exp(-2\gamma_{t|t-1}) - \frac{1}{4}(x_{1t}-x_{2t})^2 \exp(2\gamma_{t|t-1}) + \rho_{t|t-1},$$

p 217, right hand side of formula at top of page - each term should be multiplied by g.

(7.23) should be divided by 2, so the modified score on p 218 is

$$u_{\gamma t} = \frac{1}{8}(x_{1t}+x_{2t})^2 \exp(-2\gamma_{t|t-1}) - \frac{1}{8}(x_{1t}-x_{2t})^2 \exp(2\gamma_{t|t-1}) + \frac{1}{2}x_{1t}x_{2t},$$

(The only substantive difference is the appearance of the term $x_{1t}x_{2t}$.)

Minor corrections

p 24 formula 2.11 - *add* γ subscript to M, ie M_γ.

p 63 equation (3.11) - κ_q should be κ_{q-1}

p 139 2 lines above formula at foot of page (4.6) should be (4.2).

p 146 - in (4.62) delete a bracket, '(', in front of y_t.

p 161 above (5.17) -plus after $\ln \nu$ should be minus.

P 161 - in the formula above (5.17), $\nu\xi\lambda_{t|t-1}$ should have a minus sign

p 192 half-way down page (3.1) should be (6.1)

Appendix C. Note that it is assumed that $\mu = 0$ and that $\lambda_{t|t-1}$ does not require a subscript.