TABLE 1. Parametric Models of Continuous Random Variables

	Θ	$f_X(x)$	m_X	σ_X^2	$\Phi_X(\omega)$
Uniform(a,b)	$\mathbb{R}^2$	$\frac{1}{b-a}\ 1_{a<x<b}$	$\frac{a+b}{2}$	$\frac{(b-a)^2}{12}$	$\frac{e^{i\omega b}-e^{i\omega a}}{i\omega(b-a)}$
Exponential(λ)	$\mathbb{R}_+$	$\frac{1}{\lambda}e^{-\frac{x}{\lambda}}\ 1_{x>0}$	λ	λ^2	$\frac{\lambda}{\lambda-i\omega}$
Gamma(α,β)	$\mathbb{R}_+^2$	$\frac{x^{\alpha-1}e^{-\frac{x}{\beta}}}{\Gamma(\alpha)\beta^\alpha}\ 1_{x>0}$	$\alpha\beta$	$\alpha\beta^2$	$(1-i\omega\beta)^{-\alpha}$
Beta(α,β)	$\mathbb{R}_+^2$	$\frac{\Gamma(\alpha+\beta)x^{\alpha-1}(1-x)^{\beta-1}}{\Gamma(\alpha)\Gamma(\beta)}\ 1_{0<x<1}$	$\frac{\alpha}{\alpha+\beta}$	$\frac{\alpha\beta}{(\alpha+\beta)^2(\alpha+\beta+1)}$	
Laplace(α)	$\mathbb{R}_+$	$\frac{\alpha}{2}e^{-\alpha\lvert x\rvert}$	0	$\frac{2}{\alpha^2}$	$\frac{\alpha^2}{\omega^2+\alpha^2}$
Gaussian(μ,σ^2)	$\mathbb{R}\times\mathbb{R}_+$	$\frac{1}{\sqrt{2\pi\sigma^2}}e^{-\frac{(x-\mu)^2}{2\sigma^2}}$	μ	σ^2	$e^{i\mu\omega-\frac{\sigma^2}{2}\omega^2}$
Lognormal(μ,σ^2)	$\mathbb{R}\times\mathbb{R}_+$	$\frac{x^{-1}}{\sqrt{2\pi\sigma^2}}e^{-\frac{(\log x-\mu)^2}{2\sigma^2}}$	$e^{\mu+\frac{\sigma^2}{2}}$	$e^{2(\mu+\sigma^2)}-e^{2\mu+\sigma^2}$	
Chi-Squared(k)	$\mathbb{Z}_+$	$\frac{x^{\frac{k}{2}-1}e^{-\frac{x}{2}}}{\Gamma(\frac{k}{2})2^{\frac{k}{2}}}\ 1_{x>0}$	k	$2k$	$(1-2i\omega)^{-\frac{k}{2}}$
Rayleigh(α)	$\mathbb{R}_+$	$\frac{x}{\alpha^2}e^{-\frac{x^2}{2\alpha^2}}\ 1_{x>0}$	$\sqrt{\frac{\pi}{2}}\alpha$	$(2-\frac{\pi}{2})\alpha^2$	
Cauchy(μ,σ)	$\mathbb{R}\times\mathbb{R}_+$	$\frac{1}{\pi\sigma(1+(\frac{x-\mu}{\sigma})^2)}$	-	-	$e^{-\alpha\lvert\omega\rvert+i\mu\omega}$
Pareto(x_m,α)	$\mathbb{R}_+^2$	$\frac{\alpha x_m^\alpha}{x^{\alpha+1}}\ 1_{x>x_m}$	$\frac{\alpha x_m}{\alpha-1}\ (\alpha>1)$	$\frac{\alpha x_m^2}{(\alpha-2)(\alpha-1)^2}\ (\alpha>2)$	
Double Exponential(μ,σ)	$\mathbb{R}\times\mathbb{R}_+$	$\frac{1}{2\sigma}e^{-\frac{\lvert x-\mu\rvert}{\sigma}}$	μ	$2\sigma^2$	

From Leon-Garcia, P164.