FreightMetrics

Fr8Tools: Option Pricing Model Comparison

		Methodology		Modelling Assumptions			Performance			
Model	**Fr8Tools Function**	**Solution Technique**	**Type of Solution** [note 1]	**Stochastic Process**	**Fwd Curve Input?** [note 2]	**Periodic Settlement?** [note 3]	**Speed**	**Accuracy**	**Possible Extensions**	**Recommended Use**
Turnbull & Wakeman	*xlAsian_TurnbullWakeman*	Analytic	Approximation	Geometric Brownian Motion	NO	NO	Fast	Adequate	None	Estimation of implied volatility, greeks, zero-cost strategies
Turnbull & Wakeman (Modified)	*xlAsian_TurnbullWakeman_Mod*	Analytic	Approximation	Geometric Brownian Motion	YES (monthly)	YES	Fast	Good	None	Estimation of implied volatility, greeks, zero-cost strategies
Monte Carlo simulation (Generic)	*xlAsian_MC*	Numerical	Approximation	Geometric Brownian Motion	NO	YES	Slow	Good	Stochastic vol, Exotic payoffs and multi-factor structures	Arbitrage pricing, Exotic options (e.g. lookbacks, baskets, etc.)
Monte Carlo simulation (FreighMetrics)	*xlAsian_MC_FM*	Numerical	Approximation	Geometric Brownian Motion with time-dependent drift coefficients	YES (daily)	YES	Slow	Very Good	Stochastic vol, Exotic payoffs and multi-factor structures	Arbitrage pricing, Exotic options (e.g. lookbacks, baskets, etc.)

Notes:

[1] Exact vs. approximation solution. Geometric average Asian options do NOT have exact analytic solutions.
[2] Does the model take into account the full forward curve information? (a “NO” means that the model only considers the FFA price, i.e. the expected average price level, and not the full shape of the forward curve)
[3] Does the model take into account the presence of periodic settlements? (a “NO” means that the model only considers one final payoff at the time of expiry, and not the interim payoffs at the end of each settlement month)