GARCH Options Toolbox Documentation

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The option valuation models in this toolbox are ordered by the research article in which they were developed and estimated. See the references below for details. Pdf files with the articles are contained in the directory labelled "Papers". Please make sure you do not violate copyrights when you access these papers. Please also be kind and cite our papers if you use the code in our work.

Each program constructs a figure plotting the model price versus Black-Scholes price across a range of underlying asset prices. These figures are inspired by Figure 2 in Heston (RFS, 1993).

For all contracts the strike price is 100, the risk-free rate is 5% per year and the time to maturity is 60 days. The Black-Scholes volatility is set to 21% per year in all contracts.

In the GARCH models the spot volatility is set to 21% annualized. In the component models the least persistent component is set to 90% of the value of the most persistent component, which in turn is fixed at 21% annualized.

The model parameter values used are taken from the relevant paper. They are thus not necessarily consistent across papers as the sample period and option samples vary.

Note that some models are much quicker to compute than others. The GED models in the JBES2010 paper are very slow because in this version of the code we are not using the numerical tricks for GED inversion introduced in the paper. We therefore put the GED models in a separate program.

Any comments you may have on the code would be most welcome. Please send them to Peter.Christoffersen@rotman.utoronto.ca.

References:

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