Financial Econometrics I

Problem Set 6: ARCH and GARCH Models (2)

December 22, 2018

Learning objectives: After solving the following questions you should be able to

(a) Understand the necessity of introducing heteroskedastic volatility to time series models.

(b) Know the specification and main properties of ARCH/GARCH models.

(c) Know how to fit GARCH models, interpret estimation results, conduct basic model diagnostics and hypothesis tests, and forecast conditional volatility.

1. **FY Exercise 3.3 (Simulation Exercise)**

   Though you don't need to fit an ARMA-GARCH model to the data in this question, it is good to know how to do this. For the univariate case you will need to first install the `rugarch` package, and then use the `ugarchspec` (for specification) and `ugarchfit` (for estimation) functions.

2. **FY Exercise 3.9 (Empirical Exercise)**

   Part (e) is optional. To learn how to use the Delta method, read Section 2.5.2.