

Risk & Asset Allocation

Assignment

John A. Dodson

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This assignment will be worth half of your module grade for this semester. It is due in the Netfiles dropbox at 5:30 PM on October 27. You are welcome to provide code to support your work, but do not expect me to run it to generate your results. Results should be provided in text, Acrobat, Word, or Excel format.

Please work individually.

Problem

For this assignment, you will be working with the thirty components of the Dow Jones Industrial Average. You can read about these components on Yahoo! Finance under the symbol ^DJI.

1. Use two years of business-daily historical data to estimate the standard deviation of the value at the close of November 5, 2010 of one share invested in each of the Dow Jones Industrial Average components at the close of October 22, 2010. Assume that each value is lognormal and that the conditional variance of the daily returns is NGARCH(1,1).

Make sure to scale the one-day return variance forecasts to the ten-day investment horizon. Your results should be in units of dollars per share.

2. Use the devolitized returns from above to calculate the parameters of a normal copula for the joint distribution of these thirty random variables.