IEOR E4721 Course Outline

Recent Developments in Correlation Risk Modeling and Management

Instructor: Professor Gunter Meissner

Class 1: Motivation: Correlations are ubiquitous in finance
- Correlation and Investments
- Correlation and Trading
- Correlation and Risk Management
- Correlation and the Global Finance Crisis
- Correlation and Basel III

Class 2: The big picture: An overview of 15 Correlation Models; Is there a ‘Best Correlation Model’? Will there be a ‘Black-Scholes-Merton’ correlation model, which will dominate correlation modeling?

Class 3: Empirical Properties of Correlations

Class 4: The Pearson Correlation Model – Work of the Devil?

Class 5: Correlation vs Cointegration – Is Cointegration superior?

Class 6: The Gaussian Copula – Rightfully blamed for the Global Financial Crisis?

Class 7: The OFGC – One-factor Gaussian Copula model “Stupid and Dangerous”? (Paul Willmot) (applied by Basel II and III)

Class 8: Midterm

Class 9: Quantifying Market Correlation risk and Credit Correlation risk: Vanna, Cora and Gora

Class 10: Stochastic Correlation Models

Class 11: Correlation Trading Strategies – Benefits and Limitations

Class 12: Basel’s Correlation Approach – Too simplistic?

Class 13: Presentation of student research

Class 14: Final