

**Pricing Bivariate Option under GARCH-GH Model with Dynamic Copula:  
Application for Chinese Market (By Dominique Guegan)**

**Abstract:**

This paper develops the method for pricing bivariate contingent claims under General Autoregressive Conditionally Heteroskedastic (GARCH) process. In order to provide a general framework being able to accommodate skewness, leptokurtosis, fat tails as well as the time varying volatility that are often found in financial data, generalized hyperbolic (GH) distribution is used for innovations. As the association between the underlying assets may vary over time, the dynamic copula approach is considered. Therefore, the proposed method proves to play an important role in pricing bivariate option. The approach is illustrated for Chinese market with one type of better-of-two-markets claims: call option on the better performer of Shanghai Stock Composite Index and Shenzhen Stock Composite Index. Results show that the option prices obtained by the GARCH-GH model with time-varying copula differ substantially from the prices implied by the GARCH-Gaussian dynamic copula model. Moreover, the empirical work displays the advantage of the suggested method.

**Speaker's profile:**

Dominique Guegan is a full Professor at the University Paris1 Panthéon-Sorbonne where she teaches finance. She has a distinguished career in teaching and research. Her area of research include -- Non linear time series modelling, Risk measures in finance, Financial markets, Parametric and non-parametric statistical methods and Deterministic chaotic system; she has published several research articles in these areas. She has, to her credit, 5 books, 16 chapters in edited books, 55 refereed journal articles, 25 colloquium articles and 68 working papers. She has guided 26 Ph. D. theses and 50 Masters dissertations. She has been the associate Editor of the European Journal of Finance and referee to several reputed journals such as Econometrica, Journal of Business and Economic Statistics, Journal of the Royal Statistical Society, Journal of Time Series Analysis, The European Journal of Finance, Scandinavian journal of statistics and their Applications and many journals in French. She has also been consultant to Banque de France and Fortis Investment.