Fixed Income II

ECTS : 3

Description du contenu de l'enseignement :

The course is intended to be both theoretical and practical; its purpose is to introduce issues and problems that arise regarding pricing and hedging of exotic rate products. Specific examples of pricing and hedging will be dealt with. Concepts of DELTA and GAMMA/VEGA HEDGING will also be studied during the course. Recent advances in interest rate modelling will be introduced. Course outline :

- Introduction of interest rate markets
- Delta Hedging products (Interest rate futures and bonds, Interest rate swaps, Zero coupon rate construction)
- GAMMA/VEGA Hedging products (Caps -Floors, Swaptions, Volatility Surface/Cube)
- Black and Scholes model -Numeraire Change- (Caps/floors, and swaptions pricing and cases Studies)
- SABR Model (Caps-Floor, and Swaption Smile, CMS pricing and convexity adjustment case study)
- Introduction to exotic interest rate derivatives (Bermudan swaptions, Callable bond and swap, Callable reverse floater, Callable snowball and Ratchet, Target Redemption Notes -TARNs, Range Accruals)
- HJM framework -HW 1 and 2 Factors (Cap- Floor and swaption pricing in the Hull White model -Hedge Basket, Calibration concepts)
- Introduction to multifactor models (Libor Market Model)
- Cheyette Model (Stochastic volatility)
- Case studies (Forward start options, Snowballs/Ratchets)
- VaR methodology in interest rates

Compétence à acquérir :

Master the theory and practice of Fi Income products pricing and hedging.

Mode de contrôle des connaissances :

Final exam

Bibliographie, lectures recommandées :

Brigo D. and F. Mercurio, Interest Rate Models-Theory and Practice With Smile, Inflation and Credit, Springer-Verlag Berlin and Heidelberg GmbH & Co. K; Édition : 2nd Revised edition 2005, 1037 pages.

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