1 Standard European Options in the Black-Scholes Model

1.1 Call, Put, CallSpread, Digit

1.1.1 Analytic

• Black-Scholes Type Formula The general version of the Black-Scholes formula used to price European options on stocks paying a continuous dividend yields [161]

• Stochastic expansion for the pricing of call options with discrete dividends. [180]

1.1.2 Tree

• Cox Ross Rubinstein Binomial Binomial algorithm with the Cox-Ross-Rubinstein stock price parameters and probabilities [160]

• Extended Cox Ross Rubinstein Binomial Two steps backward CRR scheme, for a better accuracy of the Greeks [14]

• Hull White Binomial Binomial algorithm with the Hull-White stock price parameters and probabilities modified to account for dividends [22]

• Euler Binomial Stock price parameters and probabilities obtained from the discretization of the Wiener process

• Kamrad Ritchken Trinomial Trinomial tree with a stretch parameter $\lambda$ [189]

• Third Moment Trinomial tree with matching first three moments

• LnThird Moment Trinomial tree with matching first four moments giving a $o(h^2)$ order of accuracy

• Figlewski Gao AMM Trinomial tree with Adaptive Mesh Model [215]

• Moment and Matching Strike Algorithm Binomial tree with Moment and Matching Strike Algorithm [31]
• Efficient pricing of derivatives on assets with discrete dividends[154]
• Pricing American barrier options with discrete dividends by binomial trees[150]

1.1.3 Finite-Difference
• Gauss Method For a given time step the elliptic problem is solved by the direct method of Gauss for tridiagonal matrix [32]
• Explicit Method Direct explicit scheme [32]
• Iterative Sor Method For a given time step the elliptic problem is solved by the iterative method Sor(Successive Overrelaxation) [32]
• Multigrid Method For a given time step the elliptic problem is solved by a FMG Multigrid algorithm [240]
• Adaptative Finite Element Method Adaptative time step and space varies to improve precision.[70] [24]
• Localization of the Black-Scholes equation using transparent boundary conditions

1.1.4 Montecarlo
• Monte Carlo Standard
• Quasi Montecarlo Low discrepancy sequences(Faure, SquareRoot, VanDerCorput, Sobol, Niedereitter, Owen’s Randomization Technique) [106], [91], [96], [94], [6]
• Variance Reduction Various reduction variance methods(Antithetic Methodod, Stratified Sampling, Control Variate, Moment Matching, Importance Function, Newton, Malliavin Calculus for Digital Options) [168],[243],[101] [71]

2 Standard American Options in the Black-Scholes Model
2.1 Call, Put, CallSpread, Digit
2.1.1 Tree
• Cox Ross Rubinstein Binomial Binomial algorithm with the Cox-Ross-Rubinstein stock price parameters and probabilities [160]
• Extended Cox Ross Rubinstein Binomial Two steps backward CRR scheme, for a better accuracy of the Greeks [14]
• Hull White Binomial Binomial algorithm with the Hull-White stock price parameters and probabilities modified to account for dividends [22]

• Euler Binomial Stock price parameters and probabilities obtained from the discretization of the Wiener motion process

• Kamrad Ritchken Trinomial Trinomial tree with a stretch parameter $\lambda$ [189]

• Third Moment Trinomial tree with matching first three moments

• Breen Accelerated Binomial The Breen accelerated method approximates the Geske-Johnson option pricing formula [196]

• Broadie-Detemple BBSR Binomial Black-Scholes modification of binomial algorithm with Richardson extrapolation [103]

• LnThird Moment Trinomial tree with matching first four moments giving a $o(h^2)$ order of accuracy

• Figlewski Gao AMM Trinomial tree with Adaptive Mesh Model [215]

• Moment and Matching Strike Algorithm Binomial tree with Moment and Matching Strike Algorithm [31]

2.1.2 Finite-Difference

• Brennan-Schwartz Algorithm The Brennan-Schwartz algorithm solves the linear complementarity problem [69],[33]

• Splitting Gauss Method The obstacle problem is splitted in two steps. Theta-method finite difference algorithm [157]

• Splitting Explicit Method The obstacle problem is splitted in two steps. Explicit finite-difference algorithm [157]

• Iterative Psor Method Projected SOR algorithm is used to solve large-scale linear complementarity problem [47]

• Cryer’s Algorithm Pivoting method to solve directly linear complementarity problem [48]

• Finite Element Method Finite Element Method

• Achdou Pironneau Method Finite difference Crank-Nicholson scheme coupled, within each timestep, with an iterative algorithm to locate the free boundary. This method is inspired from [246]
2.1.3 Montecarlo

- Barraquand-Martineau Algorithm STRatification method. [55]
- Broadie-Glassermann Algorithm Approximation of dynamical programming using a stochastic mesh method. [182]
- Tsitsiklis-VanRoy Algorithm Approximation of dynamical programming using regression method [209], [208]
- Longstaff-Schwartz Algorithm Estimation of optimal stopping time using regression method [68]
- Pages-Bally Algorithm Approximation of dynamical programming using quantization method. [230]
- Broadie-Glassermann Algorithm Simulation algorithm for estimating the prices of American option with exercise opportunities in a finite set of times. [181]
- Rogers Algorithm Method based on martingale Lagrangian. [207]
- Lions Regnier Algorithm Method based on Malliavin Calculus. [137]
- Barty Roy Strugarek Algorithm Stochastic algorithm [123]
- Pricing and Hedging American-Style Options: A Simple Simulation-Based Approach [239]

2.1.4 Approximation

- MacMillan Approximation Quadratic method based on exact solutions to approximations of the partial differential equation [138]
- Whaley Approximation Quadratic method based on exact solutions to approximations of the partial differential equation [202]
- Bjerksund-Stensland Approximation The approximation is based on an exercise strategy corresponding to a flat exercise boundary [89]
- Ho-Stapleton-Subrahmanyam Approximation 2-points approximation formula with exponential extrapolation [227]
- Bunch-Johnson Approximation 2-points Geske-Johnson approximation formula [93]
- Carr Approximation Randomization and the American Put [35]
- Ju Approximation Pricing an American Option by approximating Its Early Exercise Boundary as a Multipiece Exponential Function [169]
- Broadie-Detemple LBA and LUBA Methods Approximation methods based on lower and upper bounds [103]
3 Barrier European Options in the Black-Scholes Model

3.1 Call, Put In-Out/Down-Up, Parisian

3.1.1 Analytic
- Reiner-Rubinstein Formula Black-Scholes type formula \[159\]
- Labart-Lelong Method Laplace transform method for Parisian option\[42\]
- Static Hedging of Standard Options.\[139\]

3.1.2 Trees
- Derman Kani Ergener Bardhan Algorithm Interpolation scheme for improving the pricing error of a binomial method \[95\]
- Ritchken Trinomial Algorithm Choosing the stretch parameter \(\lambda\) of the Kamrad-Ritchken method such that the barrier is hit exactly \[188\]
- Rogers-Stapleton Method Tree with random time steps corresponding to hitting times \[63\]

3.1.3 Finite-Difference
- Gauss Method Finite-difference algorithm with an interpolation scheme
- Finite Element Method Finite Element Method \[102\]

3.1.4 Montecarlo
- Baldi-Caramellino-Iovino Method Large deviations technique \[153\]

3.2 Discrete Barrier Option

3.2.1 Approximation
- Broadie-Glassermann-Kou Method A continuity correction for discrete barrier options \[217\]
- Fusai-Abrahams-Sgarra Method Analytical Solution for Discrete Barrier Options \[46\]
- Finite Difference Finite-difference algorithm.
- Tree Cheuk-Vorst algorithm \[229\].

3.2.2 Montecarlo
- Variance Reduction Reduction variance methods
4 Barrier American Options

4.1 Call, Put In-Out/Down-Up

4.1.1 Trees

- **Derman Kani Ergener Bardhan Algorithm** Interpolation scheme for improving the pricing error of a binomial method [95]
- **Ritchken Trinomial Algorithm** Choosing the stretch parameter $\lambda$ of the Kamrad-Ritchken method such that the barrier is hit exactly [188]

4.1.2 Finite-Difference

- **Psor Method** Psor Finite-difference algorithm with interpolation scheme [47]
- **Cryer’s Algorithm** Pivoting method to solve directly linear complementarity problem algorithm with interpolation scheme [48]
- **Finite Element Method** Finite Element Method [102]

5 Double Barrier European Options In/Out, Parisian in the Black-Scholes Model

5.1 Call, Put In/Out

5.1.1 Analytic

- **Kunitomo-Ikeda Formula** Pricing formula expressed as the sum of an infinite series [166]

5.1.2 Approximation

- **Geman-Yor Method** Laplace transform method [163]
- **Labart-Lelong Method** Laplace transform method for Parisian option [42]

5.1.3 Trees

- **Ritchken Trinomial Algorithm** Choosing the stretch parameter $\lambda$ of the Kamrad-Ritchken method such that the barrier is hit exactly [188]

5.1.4 Finite-Difference

- **Gauss Method** Finite-difference algorithm with interpolation scheme
- **Finite Element Method** Finite Element Method [102]
5.1.5 Montecarlo

- Baldi-Caramellino-Iovino Method Large deviations technique [153]

6 Double Barrier American Options In/Out in the Black-Scholes Model

6.1 Call, Put In/Out

6.1.1 Trees

- Ritchken Trinomial Algorithm Choosing the stretch parameter $\lambda$ of the Kamrad-Ritchken method such that the barrier is hit exactly [188]

6.1.2 Finite-Difference

- Psor Method Psor Finite-difference algorithm with interpolation scheme [47]
- Cryer’s Algorithm Pivoting method to solve directly linear complementarity problem algorithm with interpolation scheme [48]
- Finite Element Method Finite Element Method [102]

7 Lookback European Options in the Black-Scholes Model

7.1 Call, Put Fixed-Floating

7.1.1 Analytic

- Goldman-Sosin-Gatto and Conze-Viswanathan Formula Black-Scholes type formula [140],[211]

7.1.2 Trees

- Babbs Method Change of numeraire technique [212],[228]

7.1.3 Finite-Difference

- Explicit Finite Difference algorithm

7.1.4 Montecarlo

- Anderson-Brotherton-Ratcliffe Method Bias Elimination for efficient simulation procedure [198]
8 Lookback American Options

8.1 Call, Put Fixed-Floating

8.1.1 Trees
- Babbs Method Change of numeraire technique [212],[228]

8.1.2 Finite-Difference
- Explicit Finite Difference algorithm

9 European Asian Options in the Black-Scholes Model

9.1 Call, Put Fixed-Floating

9.1.1 Approximation
- Geman-Yor Method Laplace transform method [163]

9.1.2 Trees
- Forward Shooting Grid Method Barraquand-Pudet or Hull-White enhanced method [226],[23]
- Singular Points Method[151]

9.1.3 Finite-Difference
- Rogers-Shi Method Reduction to a one-dimensional PDE [249]
- Dubois-Lelievre Method New finite difference scheme [57]
- Hameur Breton Ecuyer Method Finite Element Method [136]

9.1.4 Monte Carlo
- Kemma-Vorst Method Control variate variance reduction method to compute the price of fixed-strike average-rate options with the approximation of the integral using the law of the brownian bridge [125],[72]
- Glasserman-Heidelberger-Shahabuddin Method Gaussian Importance sampling and stratification computational issue [190],[191],[27]
- Variance Reduction and Robbind-Monro algorithm [29]
- Exact retrospective Monte Carlo computation of arithmetic average Asian options [112]
9.1.5 Approximation

- Rogers-Shi Method Rogers-Shi upper and lower bounds \[249\]
- Thompson Method Upper and lower bounds \[225\]
- Levy Formula Lognormal approximation with first two moments. \[64\]
- Turnbull-Wakeman Formula Edgeworth expansion around a lognormal using first four moments. \[130\]
- Milevski-Posner Formula Reciprocal gamma distribution using first two moments. \[214\]
- Fusai-Tagliani Approximation Edgeworth expansion around a normal and maximum entropy approximation using first four logarithmic moments. \[18\]
- Zhang Approximation Analytical approximation formula with error correction obtained by numerical solution of PDE. \[104\]
- Laplace-Fourier Algorithm Laplace and Fourier Transform Algorithm.
- Lord Method Upper and lower bounds \[204\]

10 American Asian Options in the Black-Scholes Model

10.1 Call, Put Fixed-Floating

10.1.1 Trees

- Forward Shooting Grid Method Barraquand-Pudet or Hull-White enhanced method \[226,23\]
- Singular Points Method \[151\]

10.1.2 Finite-Difference

- Hameur Breton Ecuyer Method Finite Element Method

11 European nD Standard Options in the Black-Scholes Model

11.1 CallMax, PutMin, BestOf, Exchange

11.1.1 Analytic

- Stulz and Johnson Formula Black-Scholes type formula \[210,92\]
- Generalizing the Black-Scholes formula to multivariate contingent claims \[232\]
11.1.2 Tree
- Boyle-Evnine-Gibbs 4-branches Algorithm General lattice method to price contingent claims on \( k \) assets [216]
- Kamrad-Ritchken 5-branches Algorithm 5-branches tree with a stretch parameter \( \lambda \) [189]
- Euler 4-branches Algorithm Stock price parameters and probabilities obtained from the discretization of the Wiener motion processes [158]
- Product Tree 4-branches Algorithm The tree is the product of two one-dimensional trees

11.1.3 Finite-Difference
- Alternating Direction Implicite Algorithm(ADI) At each time step, one can integrate “in each direction” [115], [116]
- Explicit Method Direct explicit scheme [32]
- Implicit Method Implicit scheme solved with iterative stationary(SOR) and not stationary methods(GMRES and BiCgStab),[235],[162], [47]
- Multigrid Method The elliptic problem is solved by a FMG multigrid algorithm [240]
- Howard Method Implicit scheme solved with iterative Howard Method

11.1.4 Montecarlo
- Monte Carlo Standard
- Quasi Montecarlo Low discrepancy sequences(Faure, SquareRoot, Halton, Sobol, Niedereitter, Owen’s Randomization Technique) [106], [91], [96], [94], [6]
- Variance Reduction Various reduction variance methods(Antithetic Method, Stratified Sampling, Control Variate, Moment Matching, Importance Function, Newton) [168],[243],[101] [71]

12 American nD Standard Options in the Black-Scholes Model
12.1 CallMax, PutMin, BestOf, Exchange
12.1.1 Tree
- Boyle-Evnine-Gibbs 4-branches Algorithm General lattice method to price contingent claims on \( k \) assets [216]
• Kamrad-Ritchken 5-branches Algorithm 5-branches tree with a stretch parameter $\lambda$ [189]

• Euler 4-branches Algorithm Stock price parameters and probabilities obtained from the discretization of the Wiener motion processes [158]

• Product Tree 4-branches Algorithm The tree is the product of two one-dimensional trees

12.1.2 Finite-Difference

• Splitting Adi Method One combines an Adi method with splitting technique [157],[26]

• Splitting Explicit Method Splitting method and an explicit scheme [157]

• Splitting Implicit Method Implicit scheme solved with iterative stationary (SOR) and not stationary methods (GMRES and BiCgStab).[235],[162],[47]

• FMGH Multigrid Method The linear complementarity problem is solved by a FMGH multigrid algorithm

• Howard Method Implicit scheme solved with iterative Howard Method

12.1.3 Montecarlo

• Barraquand-Martineau Algorithm Stratification method. [55]

• Broadie-Glassermann Algorithm Approximation of dynamical programming using a stochastic mesh method. [182]

• Tsitsiklis-VanRoy Algorithm Approximation of dynamical programming using regression method. [209],[208]

• Longstaff-Schwartz Algorithm Estimation of optimal stopping time using regression method. Variance Reduction.[68],[170]

• Pages-Bally Algorithm Approximation of dynamical programming using quantization method. [230]

• Broadie-Glassermann Algorithm Simulation algorithm for estimating the prices of American option with exercise opportunities in a finite set of times. [181]

• Lions Regnier Algorithm Method based on Malliavin Calculus. [137]

• Barty Roy Strugarek Algorithm Stochastic algorithm. [123]

• Ehrlichman Henderson Algorithm Adaptive control variates for pricing multi-dimensional American options.[222]
• Andersen-Broadie Algorithm Primal-Dual Simulation Algorithm for Pricing Multidimensional American Options. [147]

• Broadie-Cao Algorithm Improved lower and upper bound algorithm for pricing American options by simulation. [148]

• Pricing and Hedging American-Style Options: A Simple Simulation-Based Approach[239]

• Pricing Convertible Bonds with Call Protection[41],[15]

• Nonparametric Variance Reduction Methods on Malliavin Calculus.[19]

12.1.4 Sparse Grid

• The effect of coordinate transformations for sparse grid pricing of basket options [39]

13 Standard European Options in the Merton Model

13.1 Call, Put, CallSpread, Digit

13.1.1 Analytic

• Merton Formula Pricing formula expressed as the sum of an infinite series. [200]

13.1.2 Approximation

• Carr-Madan Approximation Fourier Transform Algorithm [51]

• Static Hedging of Standard Options [36]

13.1.3 Finite-Difference

• Explicit Method Direct explicit scheme [32]

• Imp-Exp Method Splitting in Implicit and Explicit algorithm [99]

• ADI-FFT Method ADI-FFT algorithm [99]

13.1.4 Montecarlo

• Monte Carlo Standard

• Malliavin Monte Carlo in Pure Jump Model[127]

• Malliavin Monte Carlo in Merton Model
14 Standard American Options in the Merton Model

14.1 Call, Put, CallSpread, Digit

14.1.1 Finite-Difference

- Splitting Explicit Method The obstacle problem is splitted in two steps. Explicit finite-difference algorithm \[157\]

- Splitting ADI-FFT Method The obstacle problem is splitted in two steps. ADI-FFT finite-difference algorithm \[99],[248]\]

15 Standard European Options in the Dupire-Local Volatility Model

15.1 Call, Put, CallSpread, Digit

15.1.1 Finite-Difference

- Implicit Method Implicit scheme \[32]\]

- Adapative Finite Element Method Adapative time step and space varies to improve precision.\[70],[24]\]

- Numerical algorithms for backward differential equations in local volatility models and BS n-dimensional model \[62]\]

15.1.2 MonteCarlo

- Monte Carlo with variance reduction

15.1.3 Approximation

- Analytical formulas for local volatility model with stochastic rates \[66]\]

16 Standard European Options in the Hull-White,Stein,Scott Model

16.1 Call, Put, CallSpread, Digit

16.1.1 MonteCarlo

- Variance Reduction and Robbind-Monro algorithm \[29],[21]\]

- A generalization of the Hull and White formula with applications to option pricing approximation \[58]\]
17 Standard European Options in the Heston Model

17.1 Call, Put, CallSpread, Digit

17.1.1 Monte Carlo

- Heston Closed-Form Solution [219],[205]
- Variance Reduction and Robbind-Monro algorithm [29]
- Finite Difference method.
- Functional quantization algorithms for Asian options [88].
- Ninomiya-Victoir Scheme approximation of SDE for Asian options [223]

- Kusouka-Ninomiya-Ninomiya Scheme approximation of SDE for Asian options [156]
- A second-order discretization scheme for the CIR process: application to the Heston model [5]
- Efficient Simulation of the Heston Stochastic Volatility Model [134]
- An almost exact simulation method for the Heston model [201]
- Fast strong approximation Monte-Carlo schemes for stochastic volatility models [34]
- Exact Simulation of Option Greeks under Stochastic Volatility and Jump Diffusion Model [173]chjos11
- A Comparison of Biased Simulation Schemes for Stochastic Volatility Models [206]
- Efficient, Almost Exact Simulation of the Heston Stochastic Volatility Model [20]
- A Simple and Exact Simulation Approach to Heston Model [122]
• A. Alfonsi A.Ahdida High order discretization of Wishart process.
• Polynomial Processes and their applications to mathematical Finance[119]
• Time dependent Heston model[65]
• On The Heston Model with Stochastic Interest Rates[175]
• A Novel Option Pricing Method based on Fourier-Cosine Series Expansions[75]
• Pricing early-exercise and discrete barrier options by Fourier-cosine series expansions[74]
• A Fourier-based valuation method for Bermudan and barrier options under Heston’s model[73]
• Pricing options under stochastic volatility : a power series approach[13]
• Gamma expansion of the Heston stochastic volatility model[85]
• Fast and Accurate Long Stepping Simulation of the Heston Stochastic Volatility Model[105]
• Wiener-Hopf methods for Heston model
• Robust Approximations for Pricing Asian Options and Volatility Swaps Under Stochastic Volatility.[80]
• Small-time asymptotics for implied volatility under the Heston model[81]
• Robust approximations for pricing Asian options and volatility swaps under stochastic volatility[82]
• A Mean-Reverting SDE on Correlation Matrices[4]

17.1.2 Finite Difference
• Sparse wavelet approach [45]
• Finite Difference Schemes
• Finite Element Schemes

17.1.3 Tree
• A Tree-based Method to price American Options in the Heston Model[3]

18 Standard European Options in the Bergomi Model
• Option pricing for a lognormal stochastic volatility model.[221]
19 **Standard European Options in the Foque Papanicolaou Sircar Model**

- Monte Carlo methods with variance reduction.[121]

20 **Standard European Options in the Multi-Factor Foque Papanicolaou Sircar Model**

- Finite Difference method.

21 **Standard European Options and Barrier Options in Exponential Lévy models**

Fourier transform [224],[143] and Finite difference methods [193],[238], Wiener-Hopf[174], Closed Formulas for pricing American, Barrier options and Lookback options in Kou model [128],[129], Pricing Fast pricing of American and barrier options under Levy processes[218], Tree methods[141]

- Merton’s model ($X$ has Gaussian jumps)
- Lévy processes with Brownian component (Kou).
- Tempered stable process, variance gamma.
- Normal inverse Gaussian.
- Monte Carlo for pricing Exotics options in jump models [60].
- Backward Convolution Algorithm for Discretely Sampled Asian Options [40].
- Computing exponential moments of the discrete maximum of a Levy process and lookback options [78]
- Estimating Greeks in Simulating Levy-Driven Models[186]
- Finite intensity Levy process with non-parametric (calibrated) Lévy measure.
- Fourier space time-stepping for option pricing with Levy models[194]
- Saddlepoint methods for option pricing[38]
- Saddlepoint Approximations for Affine Jump-Diffusion Models[86]
22 Path Dependent Options in Exponential Lévy models

- Barrier options and Lookback options in Kou model. [128],[129], Pricing
- Discretely Monitored Asian Options under Levy Processes. [12]
- Pricing Discretely Monitored Asian Options by Maturity Randomization. [155]
- Wiener-Hopf techniques for Lookback options in Levy models. O. Kudryavtsev

23 Standard European Options in Stochastic volatility models with jumps

- Bates model.
- Barndorff-Nielsen and Shephard OU-SV model.
- Exponential Lévy models with stochastic time change, given by an integrated stochastic volatility process.

24 Pricing European options in affine jump-diffusion

- Non-Gaussian Ornstein-Uhlenbeck-based models and some of their uses in financial economics[28]
- Stochastic volatility for Lévy processes,[142]
- Transform Analysis and Asset Pricing for Affine Jump-Diffusions [126]
25 Calibration in the Dupire Model

- Numerical solution of an inverse problem [203],[167],
- Mercurio-Brigo Lognormal-mixture dynamics and calibration to market [76]
- Weighted Monte-Carlo Approach [144]
- Inference of a consistent implied volatility under a minimum of entropy criterion [145]
- Tree calibration algorithm [59],[30]
- Empirical semi-groups and calibration [231]

26 Calibration in Stochastic Volatility and Jump Model

- Calibration in a Heston-Merton Model [16]
- Algorithm of Andersen Andreasen [131],[16].
- Non-parametric exponential Lévy models [224]
27 Pricing Interest Rate Derivatives

27.1 Zero-Coupon Bond, Coupon Bearing, European, American Option on ZCB, Cap/Floor, Swaptions, Bermudan Swaptions

27.1.1 Vasicek, Hull-White, Hull-White 2D

- Closed Formula and Implicit Finite Difference Methods [107]
- Hull-White Trinomial Tree[109],[108]

27.1.2 Cir, Cir++

- Closed Formula
- Explicit and Implicit Finite Difference Methods
- Trinomial Tree[109],[108]
- Teichmann-Bayer: Cubature on Wiener space in infinite dimension. Finite difference methods for SPDEs and HJM-equations[120]

27.1.3 Black-Karasinski

- Trinomial Tree[109],[77]

27.1.4 Squared-Gaussian

- Schmidt Lattice[242]
- Closed Formula [79]

27.1.5 Li, Ritchken, Sankarasubramanian

- Li, Ritchken, Sankarasubramanian Lattice Methods [11]
- Carr-Yang American Monte Carlo Methods[177]

27.1.6 Bahr-Chiarella

- ADI Finite Difference [195]
27.1.7 LMM Models

- Black Formula
- Approximation of Swaptions [8]
- Monte Carlo Methods [184],[185],[8]
- Tang Lange Bushy tree methods[247]
- Pedersen Monte Carlo Methods[146]
- Andersen Monte Carlo Methods[?]
- Jump Diffusion Libor Market Model[183]
- LMM-CEV :Closed Formula, Monte Carlo[133]
- The Levy LIBOR model[61]
- Extended Libor market models with stochastic volatility[197]
- Iterative Construction of Optimal Bermudan stopping time [10]
- True upper bounds for Bermudean products via Non-Nested Monte Carlo, [50]
- Pricing and hedging callable Libor exotics in forward Libor models [237]
- A stochastic volatility forward Libor model with a term structure of volatility smiles [236]
- A new approach to LIBOR modeling [124]
- Iterating cancelable snowballs and related exotics in a many-factor Libor model [118],[97]
- Jump-adapted discretization schemes for Levy-driven SDEs [9]
- Efficient and accurate log-Lévy approximations to Lévy driven models [176]

27.1.8 Hunt Kennedy Pellser Markov-functional interest rate models

- Monte Carlo [98]
- An n-Dimensional Markov-functional Interest Rate Model [132]

27.1.9 Affine Models

- Collin-Dufresne Goldstein Algorithm [179]
- Finite Difference Algorithm for Affine 3D Gaussian Model [179]
27.1.10 Multi-factor quadratic term structure models

- The eigenfunction expansion method in multi-factor quadratic term structure models \[164\]

28 Calibration Interest Rate Derivatives

- Calibration in LMM Model \[117\]
- Calibration in LMM-Jump Model \[49\]
- Calibration in LMM-Stochastic Volatility model \[50\]
29 Pricing Inflation Derivatives

- Pricing Inflation-Indexed Derivatives in Jarrow-Yildirim model [172]
- Pricing Inflation-Indexed Options with Stochastic Volatility [171]

30 Pricing Credit Risk Derivatives

30.0.11 Credit Default Swaps: Models Reduced form approaches on single name

- *HW,CIR++*
  - HW Tree , Monte Carlo methods [187],[100]
  - CIR++ Monte Carlo Method, Derivatives pricing with the SSRD stochastic intensity model [52]

30.0.12 CDO

- Hull-White [111]
- Basket Default Swaps, CDO’s and Factor Copulas [114]
- Andersen-Sidenious [135]
- A comparative analysis of CDO pricing models [244]
- Saddlepoint approximation method for pricing CDOs [245]
- Valuing Credit Derivatives Using an Implied Copula Approach [110]
- Approximation of Large Portfolio Losses by Stein’s Method and Zero Bias Transformation [165]
- A dynamic approach to the modelling of credit derivatives using Markov chains [44]
- Calibration of CDO Tranches with the dynamical Generalized-Poisson Loss model [53]
- Portfolio losses and the term structure of loss transition rates: a new methodology for the pricing of portfolio credit derivatives [213]
- A dynamic approach to the modelling of credit derivatives using Markov chains. [54]
- Default Contagion in Large Homogeneous Portfolios. [2]
- Advanced credit portfolio modeling and CDO pricing. [234]
• Dynamic hedging of synthetic CDO-tranches with spread-and contagion risk. [84]
• Monte Carlo Computation of Small Loss Probabilities. [43]
• Pricing Credit from the top down with affine point processes [67]
• A.Alfonsi J.Lelong: A Closed-form extension to Black-Cox formula.
• Recovering portfolio default intensities implied by cdo quotes [192]
• Interacting particle systems for the computation of rare credit portfolio losses [83]

31 Pricing Energy Derivatives

31.0.13 Swing Options

• Pricing of Swing options ([199],[7])
• Finite difference methods for pricing of Swing options in Lévy-driven models [25]
• Variance optimal hedging for processes with independent increments and applications [87]

32 Pricing Volatility Product

32.0.14 Variance/Volatility Swap, Options on Realized Variance/Volatility

• Numerical methods and volatility models for valuing cliquet options [241]
• Pricing Variance Swap, Options on Realized Variance in Tempered Stable model [37],[178]
• Pricing Variance Swap, Options on Realized Variance in Heston, Double Heston, Bates Model model
• Pricing Variance Swap : Consistent Variance Curve Models [90]
• Pricing Variance Swap : Pricing options on realized variance in the Heston model with jumps in returns and volatility [17]
• Forward variance dynamics : Bergomi’s model revisited [220]

33 Pricing Insurance Derivatives

• A bivariate model for evaluating fair premiums of equity-linked policies with maturity guarantee and surrender option. [149]
34 Risk

- Computing VaR and AVar in Infinitely Divisible Distributions.[1]

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