```
   Help
#if defined(PremiaCurrentVersion) && PremiaCurrentVersion <
     (2007+2) //The "#else" part of the code will be freely av
    ailable after the (year of creation of this file + 2)
#else

/*-------------------------------------------------------------
    -----*/
/*   CF approx. for caplet prices in one-factor LMM with
    jumps  */
/*   Algorithm of Glasserman/Merener
         */
/*
         */
/*-------------------------------------------------------------
    -----*/
/*  Sonke Blunck, Premia 2005
         */
/*-------------------------------------------------------------
    -----*/

#ifndef LMM_JUMP_CAPLETPRICE_GLASSMER_H
#define LMM_JUMP_CAPLETPRICE_GLASSMER_H

#include <valarray>

int lmm_jump_caplet_GlassMer_pricer(double tenor, double     capletMat, double K
    *price) ;
// caplet pricing via the CF approx. method of Glassermann/
    Merener
int lmm_jump_caplet_MC_pricer(double tenor, double capletMa
    t, double K, double flatInitialValue, double vol, long numb
    erMCPaths, int generator, double *price);
// caplet pricing via Monte Carlo



class GlassMer  // Glasserman/Merener
// one-factor LIBOR Market Model with jumps
{
  const double _delta;       // accrual period
```

```
  const double _gamma;       // diffusion coefficient
  const double _h;           // MC time step size

  double _sqrt_h;      // square root of _h
  double _t;           // current time
  double _Xi;          // sum of indep. exponential rv's
  double _psi_factor;  // for the fct. psi
  double _x0, _x1;     // limits of integr. for the lognor
    mal density
  double _DeltaX;      // length of discret. steps for
    integr. the
  // lognormal density


  int _a_ctr_max;

  int _M;              // (number of tenor dates) -1
  int _eta;            // index of current accrual period
  int _eta_old;        // value of _eta at preceding time
    step
  int _a_ctr;          //


  std::valarray<double> _T;         // tenor dates
  std::valarray<double> _L0;        // initial LIBOR values
  std::valarray<double> _Lt;        // current LIBOR values
  std::valarray<double> _lambda;    // jump intensity
  std::valarray<double> _sigma;     // parameter of the fc
    t H in the doc.
  std::valarray<double> _DeltaJ;    // jumps
  std::valarray<double> _a;         // for the forward mea
    sure drift a
  std::valarray<double> _H;         // for the result of th
    e fct H


public:
  GlassMer(double delta = 0.5, double L0 = 0.06, double gam
    ma = 0.1,
           double h = 0.01, int M = 4);
```

```
  void InitialCond(int generator);

  int eta(double t);
  // returns the index k such that t is in (_T[k-1],_T[k]]

  void Set_t(double t);

  double H(int i, double x, double t);

  void Set_H(double x);

  double phi(int i);
  // returns phi_i(_t,_H,_Lt) as in the documentation

  double psi(int i);
  // returns psi_i(_t,_Lt) as in the documentation

  double a(int i);
  // returns the forward measure drift a^i_{_t} as in the
    docum.

  void Set_a(int i0);

  double Lambda(double t);

  void Scheme(int generator);
  // one simulation step (from _t to _t+_h) under the spot
    measure

  double CapletMC(double K, int M, int generator);
  // MC simulation of the spot measure dynamics

  double CapletCF(double K = 0.07);
  // the Glassermann/Merener CF approximation

};  // end of the class GlassMer



#endif
#endif //PremiaCurrentVersion
```

References