```
   Help
#include  "libor_affine_gou1d_stdi.h"
#include "math/libor_affine_model/libor_affine_framework.h"
#include "math/libor_affine_model/libor_affine_pricing.h"
#include "math/libor_affine_model/libor_affine_models.h"

#if defined(PremiaCurrentVersion) && PremiaCurrentVersion <
     (2011+2) //The "#else" part of the code will be freely av
    ailable after the (year of creation of this file + 2)
static int CHK_OPT(CF_LibAffGou1d_Fourier_CapFloor)(void *
    Opt, void *Mod)
{
    return NONACTIVE;
}
int CALC(CF_LibAffGou1d_Fourier_CapFloor)(void *Opt,void *
    Mod,PricingMethod *Met)
{
    return AVAILABLE_IN_FULL_PREMIA;
}
#else

static int cf_capfloor_fourier_libaff_gou1d(int InitYield
    Curve_flag, double R_flat, double x0, double lambda, double
    alpha, double beta, double cap_start, double cap_end,
    double cap_period, double cap_strike, double cap_nominal, int     cap_floor,
{
    double caplet_Tk1, caplet_Tk2, caplet_price;
    int i, nb_payement = intapprox((cap_end-cap_start)/cap_
    period);
    StructLiborAffine LiborAffine;
    ZCMarketData ZCMarket;

    PnlVect *ModelParams=pnl_vect_create(4);
    LET(ModelParams, 0) = x0;
    LET(ModelParams, 1) = lambda;
    LET(ModelParams, 2) = alpha;
    LET(ModelParams, 3) = beta;

    SetInitYieldCurve(InitYieldCurve_flag, R_flat, &ZCMarke
    t);
    CreateStructLiborAffine(&LiborAffine, &ZCMarket, cap_
    start, cap_end,cap_period, ModelParams, &phi_psi_gou1d, &Max
    MgfArg_gou1d);

    caplet_Tk1 = cap_start;
    caplet_Tk2 = caplet_Tk1+cap_period;
    *cap_price = 0.;

    for(i=0; i<nb_payement; i++)
    {
        caplet_price = cf_swaption_fourier_libaff(&LiborA
    ffine, caplet_Tk1, caplet_Tk2, cap_period, cap_strike, cap_
    nominal, cap_floor);
        *cap_price += caplet_price;

        caplet_Tk1 += cap_period;
        caplet_Tk2 += cap_period;
    }

    FreeStructLiborAffine(&LiborAffine);

    return OK;
}


///************************************************** PREMIA
    FUNCTIONS **************************************************///

int CALC(CF_LibAffGou1d_Fourier_CapFloor)(void *Opt,void *
    Mod,PricingMethod *Met)
{
    TYPEOPT* ptOpt=(TYPEOPT*)Opt;
    TYPEMOD* ptMod=(TYPEMOD*)Mod;

    int cap_floor = (((ptOpt->PayOff.Val.V_NUMFUNC_1)->
    Compute)==&Call);

    return  cf_capfloor_fourier_libaff_gou1d(   ptMod->fla
    t_flag.Val.V_INT,
                                                MOD(GetYi
    eld)(ptMod),
                                                    ptMod->x0.
    Val.V_DOUBLE,
                                                    ptMod->lam
    bda.Val.V_PDOUBLE,
                                                    ptMod->alp
    ha.Val.V_DOUBLE,
                                                    ptMod->bet
    a.Val.V_PDOUBLE,
                                                    ptOpt->Fir
    stResetDate.Val.V_DATE-ptMod->T.Val.V_DATE,
                                                    ptOpt->BM
    aturity.Val.V_DATE-ptMod->T.Val.V_DATE,
                                                    ptOpt->Res
    etPeriod.Val.V_DATE,
                                                    ptOpt->Fix
    edRate.Val.V_PDOUBLE,
                                                    ptOpt->Nom
    inal.Val.V_PDOUBLE,
                                                    cap_floor,
                                                    &(Met->Res[
    0].Val.V_DOUBLE));
}
static int CHK_OPT(CF_LibAffGou1d_Fourier_CapFloor)(void *
    Opt, void *Mod)
{
    if ((strcmp(((Option*)Opt)->Name,"Cap")==0) || (strcmp(
    ((Option*)Opt)->Name,"Floor")==0))
        return OK;
    else
        return WRONG;
}
#endif //PremiaCurrentVersion


static int MET(Init)(PricingMethod *Met,Option *Opt)
{
    if ( Met->init == 0)
    {
      Met->init=1;
       Met->HelpFilenameHint = "    cf_libor_affine_gou1d_capfloor_fourier";
    }
    return OK;
}


PricingMethod MET(CF_LibAffGou1d_Fourier_CapFloor)=
{
    "CF_LibAffGou1d_Fourier_CapFloor",
    {{" ",PREMIA_NULLTYPE,{0},FORBID}},
    CALC(CF_LibAffGou1d_Fourier_CapFloor),
    {{"Price",DOUBLE,{100},FORBID},{" ",PREMIA_NULLTYPE,{0}
    ,FORBID}},
    CHK_OPT(CF_LibAffGou1d_Fourier_CapFloor),
    CHK_ok,
    MET(Init)
} ;
```

References