

Help

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#include "bns_std.h"
#include "math/equity_pricer/levy_diffusion.h"
#include "math/equity_pricer/carr.h"

#if defined(PremiaCurrentVersion) && PremiaCurrentVersion <
    (2010+2) //The "#else" part of the code will be freely available after the (year of creation of this file + 2)
static int CHK_OPT(CF_AttariBNS)(void *Opt, void *Mod)
{
    return NONACTIVE;
}
int CALC(CF_AttariBNS)(void*Opt,void *Mod,PricingMethod *Met)
{
    return AVAILABLE_IN_FULL_PREMIA;
}
#else

int CALC(CF_AttariBNS)(void *Opt, void *Mod, PricingMethod *Met)
{
    TYPEOPT* ptOpt=(TYPEOPT*)Opt;
    TYPEMOD* ptMod=(TYPEMOD*)Mod;
    NumFunc_1 *p;
    int option_type;
    int std=1;
    double drift;
    Option_Eqd *op;
    BNS_diffusion *Process= BNS_diffusion_create(ptMod->
    Lambda.Val.V_PDOUBLE,
    ptMod->
    Rho.Val.V_PDOUBLE,
    ptMod->
    Beta.Val.V_PDOUBLE,
    ptMod->
    Alpha.Val.V_PDOUBLE,
    sqrt(pt
    Mod->Sigma0.Val.V_PDOUBLE),
    &drift);

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    Levy_diffusion * Levy =Levy_diffusion_create(Process,
&BNS_diffusion_characteristic_exponent,&BNS_diffusion_ln_
characteristic_function);
    p=ptOpt->PayOff.Val.V_NUMFUNC_1;
    if ((p->Compute)==&Call)
        option_type=1;
    else
        if((p->Compute)==&Put)
            option_type=2;
        else
            option_type=3;

    op=option_eqd_create(ptOpt->EuOrAm.Val.V_BOOL,option_
type,std,ptMod->S0.Val.V_PDDOUBLE,p->Par[0].Val.V_DOUBLE,pt
Opt->Maturity.Val.V_DATE-ptMod->T.Val.V_DATE,0,0);
    option_eqd_set_rate(op,log(1.+ptMod->R.Val.V_DOUBLE/1
00.),log(1.+ptMod->Divid.Val.V_DOUBLE/100.));

    AttariMethod_Vanilla_option_LD(op,0.1,Levy);
    (Met->Res[0].Val.V_DOUBLE)=op->price;
    (Met->Res[1].Val.V_DOUBLE)=op->delta;
    free(op);
    free(Levy);
    free(Process);
    return OK;
}

static int CHK_OPT(CF_AttariBNS)(void *Opt, void *Mod)
{
    if ((strcmp( ((Option*)Opt)->Name,"CallEuro")==0)|| (strc
mp( ((Option*)Opt)->Name,"PutEuro")==0))
        return OK;

    return  WRONG;
}

#endif //PremiaCurrentVersion

static int MET(Init)(PricingMethod *Met,Option *Opt)

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{
    if ( Met->init == 0)
    {
        Met->init=1;
    }

    return OK;
}

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

References