

[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 "#els
static int CHK_OPT(CF_CarrBNS)(void *Opt, void *Mod)
{
    return NONACTIVE;
}
int CALC(CF_CarrBNS)(void *Opt, void *Mod, PricingMethod *Met)
{
    return AVAILABLE_IN_FULL_PREMIA;
}
#else

int CALC(CF_CarrBNS)(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(ptMod->Sigma0.Val.V_PDOUBLE),
                                                    &drift);
    Levy_diffusion *Levy = Levy_diffusion_create(Process, &BNS_diffusion_character
    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;

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    op = option_eqd_create(ptOpt->EuOrAm.Val.V_BOOL, option_type, std, ptMod->S0.V
    option_eqd_set_rate(op, log(1. + ptMod->R.Val.V_DOUBLE / 100.), log(1. + ptMod

    CarrMethod_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_CarrBNS)(void *Opt, void *Mod)
{
    if ((strcmp(((Option *)Opt)->Name, "CallEuro") == 0) || (strcmp(((Option *)Opt
        return OK;

    return WRONG;
}

#endif //PremiaCurrentVersion

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

    return OK;
}

PricingMethod MET(CF_CarrBNS) =
{
    "CF_Carr_BNS",
    {" ", PREMIA_NULLTYPE, {0}, FORBID}},
    CALC(CF_CarrBNS),
    { {"Price", DOUBLE, {100}, FORBID},
      {"Delta", DOUBLE, {100}, FORBID} ,

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    {" ", PREMIA_NULLTYPE, {0}, FORBID}  
  },  
  CHK_OPT(CF_CarrBNS),  
  CHK_ok,  
  MET(Init)  
};
```