

Help

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#include "locvolhw1d_std.h"
#include "pnl/pnl_cdf.h"
#include "pnl/pnl_finance.h"
#include "pnl/pnl_root.h"
#include "pnl/pnl_cdf.h"
#include "pnl/pnl_finance.h"
#include "pnl/pnl_root.h"

#if defined(PremiaCurrentVersion) && PremiaCurrentVersion < (2012+2) //The "#els
static int CHK_OPT(AP_BGM_Locvolhw)(void *Opt, void *Mod)
{
    return NONACTIVE;
}
int CALC(AP_BGM_Locvolhw)(void *Opt, void *Mod, PricingMethod *Met)
{
    return AVAILABLE_IN_FULL_PREMIA;
}
#else

static int ApBGMLocvolhw(double S0, NumFunc_1 *p, double T, double csi, double
                        double beta, double rho, double f0t, double *ptprice)
{
    double K;
    double m, nu, BOT, sigma_t, x0, sigma2_black_T, A, sigma1_t, alpha1_T, alpha2_
        d_1, d_2, d_prime_1, d_prime_2, Greek_1, Greek_2, Greek_3, A_1, A_2, A_

    K = p->Par[0].Val.V_PDOUBLE;
    x0 = log(S0);
    m = T * f0t + 0.5 * SQR(csi) * (T + 2 * (exp(-kappa * T) - 1) / kappa - 0.5 *
    nu = SQR(csi) * (T + 2 * exp(-kappa * T) / kappa - 0.5 * exp(-2 * kappa * T) /
    BOT = exp(-m + 0.5 * nu);

    sigma_t = v * exp((beta - 1) * x0); // sigma_t=sigma(t,x0) homogeneous in time in
    sigma1_t = (beta - 1) * sigma_t; // sigma1_t=d/dx(sigma(t,x))|x=x0 homogeneous in

    A_1 = T * SQR(sigma_t);
    A_2 = nu;
```



```

        ptMod->kappa.Val.V_PDOUBLE,
        ptMod->v.Val.V_PDOUBLE,
        ptMod->beta.Val.V_PDOUBLE,
        ptMod->rho.Val.V_PDOUBLE,
        ptMod->f0t.Val.V_PDOUBLE,
        &(Met->Res[0].Val.V_DOUBLE));

    return status;
}

static int CHK_OPT(AP_BGM_Locvolhw)(void *Opt, void *Mod)
{
    if ((strcmp(((Option *)Opt)->Name, "CallEuro") == 0))
        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(AP_BGM_Locvolhw) =
{
    "AP_BGM_Locvolhw",
    {{" ", PREMIA_NULLTYPE, {0}, FORBID}},
    CALC(AP_BGM_Locvolhw),
    { {"Price", DOUBLE, {100}, FORBID},
      {" ", PREMIA_NULLTYPE, {0}, FORBID}
    },
    CHK_OPT(AP_BGM_Locvolhw),
    CHK_ok,
    MET(Init)
};

```