

[Help](#)

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#include "bs1d_std.h"

static int AllOrNothing_BlackScholes_73(double s, double k, double rebate, double t)
{
    double sigmasqrt, d1;

    sigmasqrt = sigma * sqrt(t);
    d1 = (log(s / k) + (r - divid) * t) / sigmasqrt - sigmasqrt / 2.;

    /*Price*/
    *ptprice = exp(-r * t) * rebate * cdf_nor(d1);

    /*Delta*/
    *ptdelta = exp(-r * t) * rebate * exp(-SQR(d1) / 2.) / (sqrt(2.*M_PI * t) * sigmasqrt);

    return OK;
}

int CALC(CF_Digit)(void *Opt, void *Mod, PricingMethod *Met)
{
    TYPEOPT *ptOpt = (TYPEOPT *)Opt;
    TYPEMOD *ptMod = (TYPEMOD *)Mod;
    double r, divid;

    r = log(1. + ptMod->R.Val.V_DOUBLE / 100.);
    divid = log(1. + ptMod->Divid.Val.V_DOUBLE / 100.);

    return AllOrNothing_BlackScholes_73(ptMod->S0.Val.V_PDOUBLE,
                                         (ptOpt->PayOff.Val.V_NUMFUNC_1)->Par[0].Val.V_DOUBLE,
                                         ptOpt->Maturity.Val.V_DATE - ptMod->T.Val.V_DATE,
                                         &(Met->Res[0].Val.V_DOUBLE), &(Met->Res[1].Val.V_DOUBLE));
}

static int CHK_OPT(CF_Digit)(void *Opt, void *Mod)
{
    return strcmp(((Option *)Opt)->Name, "DigitEuro");
}

```

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

    return OK;
}

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