

Help

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#include "stda.h"
#include "error_msg.h"
#include "premia_obj.h"

static NumFunc_1 put =
{
    Put,
    {"Strike", PDOUBLE, {100}, FORBID, UNSETABLE}, {" ",
        PREMIA_NULLTYPE, {0}, FORBID, SETABLE}},
    CHK_call
};

static TYPEOPT EquityLinkedSurrenderEndowment =
{
    /* PayOff; */ {"Payoff", NUMFUNC_1, {0}, FORBID, UNSETABLE},
    /*EuOrAm*/ {"Amer", BOOL, {AMER}, FORBID, UNSETABLE},
    /*Maturity*/ {"Maturity(in years)", DATE, {0}, ALLOW, SETABLE},
    /*DeemedContribution*/ {"Deemed Contribution", PDOUBLE, {0}, ALLOW, SETABLE},
    /*InitialAge*/ {"Initial Age", PDOUBLE, {0}, ALLOW, SETABLE},
    /*Premium*/ {"Premium", PDOUBLE, {0}, ALLOW, SETABLE},
    /*MinimumGuaranteed*/ {"MinimumGuaranteed", PDOUBLE, {0}, ALLOW, SETABLE},
    /*Number of Monitoring Dates*/ {"Number of Monitoring Dates", PINT, {0}, IRRELEVANT, UNSETABLE},
    /*Alpha*/ {"Alpha", RGDOUBLE, {0}, IRRELEVANT, UNSETABLE},
    ,
    /*Alpha_m*/ {"Alpha_m", RGDOUBLE, {0}, IRRELEVANT, UNSETABLE},
    /*MultiplierCPPi*/ {"MultiplierCPPi", PDOUBLE, {0}, IRRELEVANT, UNSETABLE},
    /*Ratchet*/ {"Ratchet", BOOL, {0}, IRRELEVANT, UNSETABLE},
    /*Gamma*/ {"Gamma", PDOUBLE, {0}, IRRELEVANT, UNSETABLE},
    /*Bonus B*/ {"Bonus", PDOUBLE, {0}, IRRELEVANT, UNSETABLE},
    ,
    /*WithdrawlRate G*/ {"WithdrawlRate", PDOUBLE, {0}, IRREL

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    EVANT, UNSETABLE},
/*Base case surrender charges*/{"SurrenderCharges", PNLV
    ECT, {0}, IRRELEVANT, UNSETABLE},
/*Base case surrender Times*/{"SurrenderTimes", PNLVEC
    T, {0}, IRRELEVANT, UNSETABLE},
/*Mortality*/{"MortalityData", FILENAME, {0}, FORBID, SE
    TABLE},
/*Maximum WithdrawlRate G*/ {"Maximum WithdrawalRate",
    PDOUBLE, {0}, FORBID, UNSETABLE},
/*RateAccumulation*/ {"RateAccumulation", PDOUBLE, {0},
    FORBID, UNSETABLE},
/*PremiumPercentage*/ {"PremiumPercentage", PDOUBLE, {0
    }, FORBID, UNSETABLE},
/*RollUpRate*/ {"CompoundRollUpRate", PDOUBLE, {0}, FORB
    ID, UNSETABLE},
/*ForceOfMortality*/ {"ForceOfMortality", PDOUBLE, {0},
    FORBID, UNSETABLE},
/*TermCertainAnnuitiyMaturity*/ {"TermCertainAnnuitiyMatu
    rity", DATE, {0},FORBID,UNSETABLE},
};

static int OPT(Init)(Option *opt, Model *mod)
{
    TYPEOPT *pt = (TYPEOPT *) (opt->TypeOpt);

    if (opt->init == 0)
    {
        opt->init = 1;
        opt->HelpFilenameHint = "equity_linked";
        opt->nvar = 24;
        opt->nvar_setable = 7;

        pt->PayOff.Val.V_NUMFUNC_1 = &put;
        (pt->PayOff.Val.V_NUMFUNC_1)->Par[0].Val.V_PDOUBLE =
        100.0;
        (pt->EuOrAm).Val.V_BOOL = AMER;

        (pt->Maturity).Val.V_DATE = 5.;
        (pt->Premium).Val.V_PDOUBLE = 106;
        (pt->DeemedContribution).Val.V_PDOUBLE = 100;
        (pt->MinimumGuaranteed).Val.V_PDOUBLE = 0.02;
    }
}

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(pt->InitialAge).Val.V_PDOUBLE = 50;

/*Mortality Data*/
if (pt->MortalityData.Val.V_FILENAME == NULL)
{
    if ((pt->MortalityData.Val.V_FILENAME = malloc(sizeof(char) * MAX_PATH_LEN)) == NULL)
        return MEMORY_ALLOCATION_FAILURE;
    sprintf(pt->MortalityData.Val.V_FILENAME, "%s%Mortality.dat", premia_data_dir, path_sep);
}

}
return OK;
}

MAKEOPT(EquityLinkedSurrenderEndowment);
```

References