

[Help](#)

```
#include "
href../../mod/bs1d/bs1d_stdz/bs1d_stdz_h_src.pdfstdz.h"
#include "
href../../common/error_msg_h_src.pdferror_msg.h"
#include "premia_obj.h"

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

static TYPEOPT GMMB_RISK =
{
    /*PayOff*/      {"Payoff", NUMFUNC_1, {0}, FORBID, UNSETABLE},
    /*EuOrAm*/      {"Euro", BOOL, {AMER}, FORBID, UNSETABLE},
    /*Maturity*/     {"Maturity", DATE, {0}, ALLOW, SETABLE},
    /*PremiumPercentage*/ {"Percentage of Premium Guaranteed", PDOUBLE, {0}, ALLOW, SETABLE},
    /*RollUpRate*/ {"Compound RollUp Rate", PDOUBLE, {0}, FORBID, UNSETABLE},
    /*Margin offset*/ {"Margin Offset", PDOUBLE, {0}, ALLOW, SETABLE},
    /*Mortality Expense Fee*/ {"Mortality & Expense Fee", PDOUBLE, {0}, ALLOW, SETABLE},
    /*Additional Earning1*/ {"Share of the policyholder's variable annuities earned", PDOUBLE, {0}, ALLOW, SETABLE},
    /*Additional Earning2*/ {"Maximum additional payout", PDOUBLE, {0}, ALLOW, SETABLE},
    /*Risk Level*/ {"Risk Level", RGDOUBLE, {0}, ALLOW, SETABLE},
};

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

    if (opt->init == 0)
    {
        opt->init = 1;
        opt->nvar = 10;
        opt->nvar_setable = 8;
        pt->PayOff.Val.V_NUMFUNC_1 = &put;
    }
}
```

```

        (pt->Maturity).Val.V_DATE = 10;
        (pt->PremiumPercentage).Val.V_PDOUBLE = 0.75;
        (pt->CompoundRollUpRate).Val.V_PDOUBLE = 0.06;
        (pt->Margin).Val.V_PDOUBLE = 0.0035;
        (pt->Mortalityexpensefee).Val.V_PDOUBLE = 0.01;
        (pt->Additionallearning1).Val.V_PDOUBLE = 0.;
        (pt->Additionallearning2).Val.V_PDOUBLE = 200;
        (pt->RiskLevel).Val.V_RGDOUBLE = 0.8;
    }

    return OK;
}

MAKEOPT(GMMB_RISK);

```