

[Help](#)

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#include "stdndc.h"
#include "error_msg.h"
#include "premia_obj.h"

static TYPEOPT CDO =
{
    {"Number of Companies", PINT, {0}, FORBID, UNSETABLE},
    {"Maturity", DATE, {0}, ALLOW, SETABLE},
    {"Homogeneous Nominals", ENUM, {0}, FORBID, SETABLE},
    {"Tranches", PNLVECT, {0}, FORBID, SETABLE},
    {"Type of Recovery", ENUM, {0}, FORBID, SETABLE},
    {"Recovery Parameters", DOUBLE, {0}, FORBID, SETABLE},
    {"Number of coupon payments per year", INT, {0}, ALLOW, SETABLE},
    {"Current date", DATE, {0}, IRRELEVANT, UNSETABLE},
    {"Number of defaults at current date", INT, {0}, IRRELEVANT, UNSETABLE}
};

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

    /* get the size from the model */
    mod->Init(mod);
    pt->Ncomp.Val.V_PINT = ptMod[0].Val.V_PINT;

    if (opt->init == 0 )
    {
        opt->init = 1;
        opt->nvar = 9;

        pt->date.Val.V_DATE = 0.; /* useless but needs to be
        initialised */
        pt->n_defaults.Val.V_INT = 0; /* useless but needs
        to be initialised */

        opt->nvar_setable = 6;
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    pt->maturity.Val.V_DATE=5.0;
    pt->NbPayment.Val.V_INT=4;

    pt->t_nominal.Viter = IRRELEVANT;
    pt->t_nominal.Vsetable = UNSETABLE;
    pt->t_nominal.Val.V_ENUM.value=1;
    pt->t_nominal.Val.V_ENUM.members=NULL;

    pt->tranch.Val.V_PNLVECT=NULL;

    pt->t_recovery.Viter = IRRELEVANT;
    pt->t_recovery.Vsetable = UNSETABLE;
    pt->t_recovery.Val.V_ENUM.value = 1;
    pt->t_recovery.Val.V_ENUM.members = NULL;

    pt->p_recovery.Viter=FORBID;
    pt->p_recovery.Vsetable = SETABLE;
    pt->p_recovery.Vtype = DOUBLE;
    pt->p_recovery.Val.V_DOUBLE=0.4;
    pt->p_recovery.Vname = "Recovery";
}

/* tranches */
if ((pt->tranch).Val.V_PNLVECT == NULL)
{
    double tranches[5] = {0, 0.03, 0.06, 0.1, 1};
    if ((pt->tranch.Val.V_PNLVECT =
        pnl_vect_create_from_ptr (5, tranches))==NULL)
        return WRONG;
}

return OK;
}

MAKEOPTGEN(CDO);

```

References