

[Help](#)

```
#include "bergomirev2d.h"
#include "chk.h"
#include "error_msg.h"
#include "model.h"
#include "premia_obj.h"

static int MOD(Init)(Model *model)
{
    TYPEMOD *pt = (TYPEMOD *) (model->TypeModel);

    if (model->init == 0)
    {
        model->init = 1;
        model->nvar = 0;
        pt->T.Vname = "Current Date";
        pt->T.Vtype = DATE;
        pt->T.Val.V_DATE = 0.;
        pt->T.Viter = ALLOW;
        model->nvar++;

        pt->S0.Vname = "Spot";
        pt->S0.Vtype = PDOUBLE;
        pt->S0.Val.V_PDOUBLE = 100.;
        pt->S0.Viter = ALLOW;
        model->nvar++;

        pt->Divid.Vname = "Annual Dividend Rate";
        pt->Divid.Vtype = DOUBLE;
        pt->Divid.Val.V_DOUBLE = 0.;
        pt->Divid.Viter = ALLOW;
        model->nvar++;

        pt->R.Vname = "Annual Interest Rate";
        pt->R.Vtype = DOUBLE;
        pt->R.Val.V_DOUBLE = 4.;
        pt->R.Viter = ALLOW;
        model->nvar++;

        pt->theta.Vname = "Theta";
```

```
pt->theta.Vtype = PDOUBLE;
pt->theta.Val.V_PDOUBLE = 0.3;
pt->theta.Viter = ALLOW;
model->nvar++;

pt->k1.Vname = "Mean Reversion Speed 1";
pt->k1.Vtype = PDOUBLE;
pt->k1.Val.V_PDOUBLE = 0.3;
pt->k1.Viter = ALLOW;
model->nvar++;

pt->k2.Vname = "Mean Reversion Speed 2";
pt->k2.Vtype = PDOUBLE;
pt->k2.Val.V_PDOUBLE = 8.0;
pt->k2.Viter = ALLOW;
model->nvar++;

/* pt->rhoxy.Vname = "Correlation between factors";
 * pt->rhoxy.Vtype=RGDOUBLEM11;
 * pt->rhoxy.Val.V_RGDOUBLEM11=0.;
 * pt->rhoxy.Viter=ALLOW;
 * model->nvar++; */

pt->rhoSx.Vname = "Correlation between stock and factor 1";
pt->rhoSx.Vtype = RGDOUBLEM11;
pt->rhoSx.Val.V_RGDOUBLEM11 = -0.6;
pt->rhoSx.Viter = ALLOW;
model->nvar++;

pt->rhoSy.Vname = "Correlation between stock and factor 2";
pt->rhoSy.Vtype = RGDOUBLEM11;
pt->rhoSy.Val.V_RGDOUBLEM11 = -0.7;
pt->rhoSy.Viter = ALLOW;
model->nvar++;

pt->ForwardVarianceData.Vname = "ForwardVarianceData";
pt->ForwardVarianceData.Vtype = FILENAME;
pt->ForwardVarianceData.Val.V_INT = 0;
pt->ForwardVarianceData.Viter = FORBID;
pt->ForwardVarianceData.Vsetable = SETABLE;
```

```
        model->nvar++;
        if ((pt->ForwardVarianceData.Val.V_FILENAME = malloc(sizeof(char) * MAX_PA
            return MEMORY_ALLOCATION_FAILURE;
        sprintf(pt->ForwardVarianceData.Val.V_FILENAME, "%s%sForwardVarianceData.d

    }

    return OK;
}

TYPEMOD bergomirev2d;
MAKEMOD(bergomirev2d);
```