

## Help

```
#ifndef _BS1D_DOUBLIM_H
#define _BS1D_DOUBLIM_H

#include "bs1d/bs1d.h"
#include "doublim/doublim.h"

#include "pnl/pnl_mathtools.h"
#include "pnl/pnl_random.h"
#include "pnl/pnl_cdf.h"
#include "numfunc.h"
#include "transopt.h"
#include "pnl/pnl_complex.h"

/* Utility function shared
 *
 *
 */

extern int MOD_OPT(PutOut_KunitomoIkeda_91_lib)(double s,
    NumFunc_1 *L, NumFunc_1 *U, NumFunc_1 *Rebate, NumFunc_1 *Pay0
    ff,
    double t, double r, double divid, double sigma, double
    *ptprice, double *ptdelta);

extern int MOD_OPT(CallOut_KunitomoIkeda_91_lib)(double s,
    NumFunc_1 *L, NumFunc_1 *U, NumFunc_1 *Rebate, NumFunc_1 *Pay0
    ff,
    double t, double r, double divid, double sigma, double
    *ptprice, double *ptdelta);

extern double MOD_OPT(Boundary_lib)(double s, NumFunc_1 *p,
    double t, double r, double divid, double sigma);

/* aliases */

#define Boundary MOD_OPT(Boundary_lib)
#define CallOut_KunitomoIkeda_91 MOD_OPT(CallOut_KunitomoI
```

```
        keda_91_lib)
#define PutOut_KunitomoIkeda_91 MOD_OPT(PutOut_KunitomoIke
        da_91_lib)

#endif
```

## References