

[Help](#)

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#ifndef _WIENERHOPFRS_H
#define _WIENERHOPFRS_H

#include <stdlib.h>
#include <math.h>

#include "pnl/pnl_vector.h"
#include "pnl/pnl_matrix.h"
#include "pnl/pnl_fft.h"
// #include "vector.h"
// #include "dft.h"

/*////////////////////////*/
void realfastfouriertransform(PnlVect *a, int tnn, int inversefft);

int readparamskou_rs(int *nstates, PnlVect **rr, PnlVect **divi, PnlVect **sigmas, PnlVect **lambdam, PnlVect **lambdap, PnlVect **lambda, PnlVect **pp, PnlMat **lam, char *filename);

int readparamstsl_rs(int *nstates, PnlVect **rr, PnlVect **divi, PnlVect **nums, PnlVect **nups, PnlVect **lambdam, PnlVect **lambdap, PnlVect **cm, PnlVect **cp, PnlMat **lam, char *filename);

int fastwienerhopfamerican_rs(int model, long int Nr, PnlVect *mu, PnlVect *qu, double om, int ifCall, double Spot, PnlVect *lm1, PnlVect *lp1, PnlVect *num, PnlVect *nup, PnlVect *cnum, PnlVect *cnup, PnlVect *r, PnlVect *divid, PnlMat *lam, double T, double h, PnlVect *Strike1, double er, long int step, double eps,

```

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                                PnlVect *ptprice, PnlVect *pt
delta);

int fastwienerhopf_rs(int model, long int Nr, PnlVect *mu,
    PnlVect *qu, double om, int am, int upordown,
                                int ifCall, double Spot, PnlVect *lm1
    , PnlVect *lp1,
                                PnlVect *num, PnlVect *nup, PnlVect *
cnum, PnlVect *cnup,
                                PnlVect *r, PnlVect *divid, PnlMat *
lam,
                                double T, double h, PnlVect *Strike1,
                                double bar, PnlVect *rebate,
                                double er, long int step, double eps,
                                PnlVect *ptprice, PnlVect *ptdelta);
int fastwienerhopf_hs(int model, long int Nr, PnlVect *mu,
    PnlVect *qu, double om, int am, int upordown,
                                int ifCall, double Spot, double lm1,
    double lp1,
                                PnlVect *sg, PnlVect *num, PnlVect *
nup, double cnum, double cnup,
                                double r, double divid, PnlMat *lam,
                                double T, double h, double Strike1,
                                double bar, double rebate,
                                double er, long int step, PnlVect *pt
price, PnlVect *ptdelta);
int fastwienerhopfamer_hs(int model, long int Nr, PnlVect *
mu, PnlVect *qu, double om,
                                int ifCall, double Spot, double
lm1, double lp1,
                                PnlVect *sg, PnlVect *num, PnlVec
t *nup, double cnum, double cnup,
                                double r, double divi, PnlMat *
lam,
                                double T, double h, double Strike
1,
                                double er, long int step, PnlVec
t *ptprice, PnlVect *ptdelta);

#endif

```

References