

dup1d

1 Description

We consider a market model of local volatility where the evolution of the stock-price is governed by the stochastic differential equation

$$\frac{dS_t}{S_t} = (r - \delta)dt + \sigma(t, S_t)dB_t, \quad (1)$$

where the interest rate r and the dividend rate δ are nonnegative constants and $(B_t)_{0 \leq t \leq T}$ is a standard Brownian motion. The volatility σ is a $C^{1,2}$ function and is assumed to be uniformly bounded.

2 Code Implementation

```
#ifndef _DUPIRE1D_H
#define _DUPIRE1D_H

#include "optype.h"
#include "var.h"

#define TYPEMOD DUP1D

/*1D Dupire World*/
typedef struct TYPEMOD
{
    VAR T;
    VAR S0;
    VAR Mu;
    VAR Sigma;
    VAR Divid;
    VAR R;
```

```
} TYPEMOD;
```

```
#endif
```