

# scott1d

## 1 Description

This model is given by,

$$\begin{aligned}dS_t &= rS_t dt + \exp(v_t)S_t dW_t^1, \\ dv_t &= k(\theta - v_t)dt + \sigma dW_t^2,\end{aligned}$$

where  $W^1$  and  $W^2$  are two correlated brownian motions with  $\langle W^1, W^2 \rangle_t = \rho t$ , and  $k$ ,  $\theta$  and  $\sigma$  are constants.

## 2 Code Implementation

```
#ifndef _SCOTT1D_H
#define _SCOTT1D_H

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

#define TYPEMOD SCOTT1D

/*1D SCOTT World*/
typedef struct TYPEMOD
{
    VAR T;
    VAR SO;
    VAR Divid;
    VAR R;
    VAR Sigma0;
    VAR MeanReversion;
    VAR LongRunVariance;
```

```
    VAR Sigma;  
    VAR Rho;  
} TYPEMOD;  
  
#endif
```