

## [Help](#)

```
#ifndef _SABR_H
#define _SABR_H

#include "
href../../../../common/math/ImportanceSampling_jl/src/Model_h_src.pdfmath/Import
#include "pnl/pnl_matrix.h"
#include "pnl/pnl_random.h"

/**
 * SABR BaseModel
 *
 *
 * \ f[  $dS^i_t = \text{interest } S^i_t dt + \sigma_t^i (\sigma_t^i)^{\{\beta^i\}} dB^i_t$ 
 * \ f[  $d\sigma_t^i = \nu^i \sigma_t^i (\rho dB^i_t + \sqrt{1 - \rho^2} d\tilde{B}^i_t)$ 
 * where  $B$  and  $\tilde{B}$  are independent and
 * \ f[  $d\langle B, \tilde{B} \rangle_t = \rho dt$ 
 * \ f[  $d\langle \tilde{B}, \tilde{B} \rangle_t = dt$ 
 *
 * This can be equivalently rewritten
 * \ f[  $dS^i_t = \text{interest } S^i_t dt + \sigma_t^i (\sigma_t^i)^{\{\beta^i\}} dB^i_t$ 
 * \ f[  $d\sigma_t^i = \nu^i \sigma_t^i dW^i_t$ 
 * where
 * \ f[  $d\langle B, W \rangle_t = \rho dt$ 
 * \ f[  $d\langle W, W \rangle_t = dt$ 
 * \ f[  $d\langle W, \tilde{W} \rangle_t = \gamma dt$ 
 */
class SABRModel : public StocVolModel
{
private:
    PnlVect *beta; /*!< SABR exponent */

public:
    SABRModel();
    SABRModel(const Param &P);
    ~SABRModel();
    void print() const;
    virtual void path();
};
```

```
#endif /* _SABR_H */
```