

NAME

FFTEngine – Base class for FFT pricing engines for European vanilla options.

SYNOPSIS

```
#include <ql/experimental/variancegamma/fftengine.hpp>
```

Inherits engine.

Inherited by **FFTVanillaEngine**, and **FFTVarianceGammaEngine**.

Public Member Functions

FFTEngine (const boost::shared_ptr< **StochasticProcess1D** > &process, **Real** logStrikeSpacing)

void **calculate** () const

void **update** ()

void **precalculate** (const std::vector< boost::shared_ptr< **Instrument** > > &optionList)

virtual std::auto_ptr< **FFTEngine** > **clone** () const =0

Protected Member Functions

virtual void **precalculateExpiry** (**Date** d)=0

virtual std::complex< **Real** > **complexFourierTransform** (std::complex< **Real** > u) const =0

virtual **Real** **discountFactor** (**Date** d) const =0

virtual **Real** **dividendYield** (**Date** d) const =0

void **calculateUncached** (boost::shared_ptr< **StrikedTypePayoff** > payoff, boost::shared_ptr< **Exercise** > exercise) const

Protected Attributes

boost::shared_ptr< **StochasticProcess1D** > **process_**

Real **lambda_**

Detailed Description

Base class for FFT pricing engines for European vanilla options.

The FFT engine calculates the values of all options with the same expiry at the same time. For that reason it is very inefficient to price options individually. When using this engine you should collect all the options you wish to price in a list and call the engine's precalculate method before calling the NPV method of the option.

References: Carr, P. and D. B. Madan (1998), 'Option Valuation using the fast Fourier transform,' Journal of Computational Finance, 2, 61-73.

Author

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