Abstract

E-BABE-Fast Pricing Exotic products using machine Learning Techincs

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Structured products are becoming more and more important in the world of investment banking, and more and more investors are incorporating this type of asset in their portfolios. There are various types of structured products, suitable for different investor profiles, including individual.

The objective of this article is to introduce new pricing methods other than Monte Carlo methods to speed up the computation time of some structured products called exotic products. We will show how we reduce computation time from 371 days to 2.11 seconds keeping a very accurate precision. First we will introduce the financial products we price, for that we will describe the environment. Second, knowing that we never used machine learning technics to price products at HSBC, one of the parts of the projects was a proof of concept on vanilla products to see if we can apply such techniques (Machine Learning) on more complex products such as Exotics. Third, We will introduce a new deep learning model for non linear interpolation to price Exotic products: Autocallables for Mono-Underlying then on Multi-Underlyings .The last part of this project was the back-testing of our model on the last months .

Biography:

CHAOUACHI Wassim has completed his Master degree at the age of 24 years from Ecole Normale supérieure and Paris-Dauphine University in Applied Mathematics and Machine Learning. He is a Quantitative researcher at La Française Investment Solutions, one of th best hedge funds in Europe.

He previously worked at HSBC between the equity quantitative research department and the structuring, where he introduced one of the first machine learning models in the financial market industry to price exotic products.

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