Mathematics in financial market

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Mathematics, in modern or we take in ancient times plays an eminently important role in each and every circle of one's life. People often mis-concept the role of Mathematics in Finance and do not give it major importance. But, if we see to it, Mathematics and its principles have a lot to do with Finance and in Financial Markets.

By Financial Markets, I am considering the business of trading and the types of risks associated with it. Mathematics has played an important role in determining all the factors and associations relating to this field. Mathematical Finance, also known to be as Quantitative Finance, is a field of Applied and Advanced Mathematics, which is concerned with Mathematical Modelling of Financial Markets and helping to interpret the results thereof. Generally, if we consider this topic in pure deepness, mathematical finance will derive and extend the mathematical or numerical models without necessarily establishing a link to financial theory, taking observed market prices as inputs. Mathematical Finance often overlaps with the fields of computational finance and financial engineering. It won't be appropriate to interpret that mathematics isn't important in financial markets.

The question that now arises is, what sort of mathematics is involved in financial markets and its operations? Well, many models and interpreters assume that the asset prices determination is a piece of cake. The simplest leads to a normal distribution and the common one lead to the normal log distribution. The mathematics in financial markets is related to finding out interest rates, market conditions, etc. and therefore play a major role in this field. The list goes on – measure theory, Sobol sequences for random numbers, Poisson processes, nonlinear PDEs etc.

In the end, the fact concludes with the end result that mathematics has a lot to do with the financial markets. Without the application of mathematics and its principles, it would be rather impossible for everyone to interpret results regarding the financial markets and its systems.
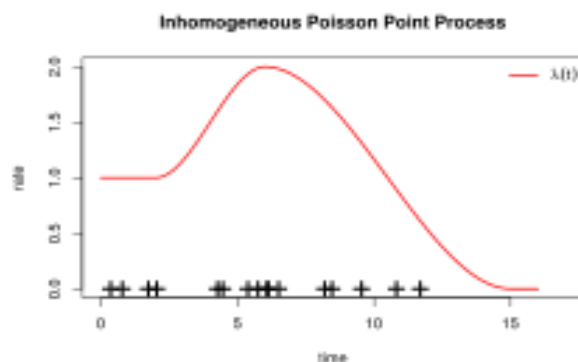

Fig. 1: Inhomogeneous passion point process

REFERENCE
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