

ABSTRACT

This PhD thesis consists of two parts that both can be put into a financial context. In the first part we consider the extreme behavior of a certain class of Gaussian processes. We are interested in the probability that a linear combination of Gaussian processes and a deterministic trend exceed a given high boundary. The result of this stochastic problem can be interpreted as the ruin probability of a portfolio of assets. In the second part we introduce the “Heterogeneous Multi Agents Model” which describes the price process of a virtual foreign exchange market. The goals are to reproduce the statistical properties of price time series of real foreign exchange markets and to support the hypothesis of a heterogeneous market.

Revised edition (January 30, 2003)