

RÓBERT CHOVANEC :
ZOBECNĚNÝ STABILNÍ MODEL VE FINANCÍCH
The referee's report

The thesis comes from recently rather frequent reservations as to the suitability of Gaussian models in stochastic finance, the criticism having been started by B. Mandelbrot already in 1960 (see [27]). His recommendation to model the financial return processes by laws coming from a non-Gaussian stable probability distribution provides the principal reason for the research presented by thesis. The author starts with the basics of the theory of stable probability distributions (Chapter 2), presents the corresponding theory for ARMA and GARCH models (Chapters 3 and 4). The principal and original part of the thesis is delivered by closing four chapters that provide relevant illustrations and simulations. The real data processing study in Chapter 5 relates to the energy consumption of a company during 2006 year.


A neat and a well organized text in good English is presented rather as an introductory review paper, where the proofs are frequently abbreviated or even skipped, the reader being referred to the original sources. A typical example is the proof of Property 2.12, p. 18 and p.19. The author should have, when defending his theses, to compute the limit

$$\lim_{\lambda \rightarrow \infty} \lambda^\alpha P[X > \lambda] = C_\alpha \frac{1 + \beta}{2} c^\alpha$$

in detail, following his own recommendation *One can apply a central limit argument, as in Feller . . .* . Both definitions 2.1 and 2.2, p.12, define the concept of a stable probability distribution \mathcal{H} . Is not 2.2 meant rather as an equivalent definition, hence a statement that should be either proved or a reference to its origin provided? In a similar relation are Definitions 2.16 and 2.17 on p. 21.

Nevertheless, the thesis presents a non-trivial research mainly by its applied third part and undoubtedly it is a contribution of interest in stochastic finance modeling. As such I recommend to accept it as the diploma thesis at MFF UK.

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Josef Štěpán