

ON POLYNOMIAL TECHNIQUE APPLIED TO FINANCIAL AND ACTUARIAL MODELING

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The leading idea of our approach will be demonstrated with the help of polynomial extensions of a normal distribution. We use the product of a polynomial and the normal density to model the density function of the logarithmic returns in order to adjust the estimation for skewness, kurtosis and other moment parameters. Some other extensions will be presented in the talk. A link between the polynomial and the basic distribution density can be derived from the system of the Pearson's differential equation. Some of these distributions are useful in actuarial modeling. An empirical study is provided on selective models including the Black-Scholes model, the T-distribution model and their corresponding polynomial versions.