

# MODELING MOMENTS OF ORDER THREE AND FOUR OF DISTRIBUTION OF YIELDS

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## ABSTRACT

The different ways of assessing risk are numerous in the financial literature. Regulation has made it a function of Value-at-Risk. Recalling the inadequacy of current approaches, the recent crisis is encouraging us to have tools giving more information on losses and gains. In recent years, modern statistics have developed a series of probabilistic tools that today have direct applications in finance. This is particularly the case for the use of the order three and four moments in the Value-at-Risk calculation. For the study of leptokurticity, or non-Gaussianity, and the asymmetry of the distribution of yields. This work aims to apply this technique to types of financial assets including CAC40 member companies.

The analysis of the regulation and its evolution following the economic crisis of 2008 make it possible to define the stakes and the difficulty of the measurement of the risks. The presentation of the concept of moments of order three and four exhibits their properties and shows that they bring more information on the tails of distributions than do the classical moments. The distribution of the returns of these securities makes it possible to show that this is a case of financial assets whose behavior is far from a normal distribution and thus requiring special techniques. Finally, the empirical analysis of CAC40 financial securities over a long period shows the benefit of order three and four moments in stalling laws and building more robust quantile estimators than those built from a law. Normal or by retaining historical distributions.

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Key words: Value-at-Risk, the study of leptokurticity, and the asymmetry.

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