THE UNIVERSITY OF CHICAGO | DEPARTMENT OF STATISTICS

MASTER'S THESIS PRESENTATION

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An Application of Dynamic Asymmetric Exponential Power Distributions on Value-at-risk Estimation

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Zoom Meeting, 5747 S. Ellis Avenue

ABSTRACT

Forecasting value-at-risk (VaR) is a challenging task since people often fail to properly account for time-varying characteristics in the financial market. To overcome these limitations, we make use of a VaR forecast algorithm based on dynamic asymmetric exponential (AEP) distribution and apply this method to both real-world and simulated financial data. This algorithm includes dynamic parameters that control the shape of the distribution, the probability of positive returns as well as the volatility. Empirical evidence shows the dynamic AEP distribution results in lower violation rates and better consistency with the actual confidence level compared to the GARCH method with a common-noise distribution.