VALUE-AT-RISK UNDER GENERALIZED AND ASYMMETRICAL POWER DISTRIBUTION

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ABSTRACT

It is widely accepted that financial asset return does not follow normal distribution and is likely to demonstrate tail-thickness and non-zero skewness. That means applying normal distribution in value-at-risk computation will result estimating the risk incorrectly. In this work, I adopt generalized and asymmetrical power distribution in value-at-risk computation. The first one is a family distribution that allows flexible rate of decay, whereas the latter also allows for asymmetrical form of distribution. We test models' accuracy from out-of-sample period in 5 Thai major assets. The test is performed at 95%, 97.5% and 99% confidence level. The result suggest that assuming generalized and asymmetrical power distributions are outperformed assuming normal distribution in case of computing value-at-risk at 97.5% and 99% confidence level.

Key word: Value-at-Risk, VaR, Forecasting Volatility, Risk Measurement, Backtesting, Generalized Power Distribution, Asymmetrical Power Distribution.