Markov Switching Quantile model with unknown tau for Energy stocks price index Thailand

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Abstract. In this study, we propose a Markov regime-switching quantile regression model, which considers the quantile as an unknown parameter and estimates it jointly with other regression coefficients under asymmetric Laplace distribution. The parameters are estimated by the maximum likelihood estimation (MLE) method. Our proposed model aims to address the problem about which quantile would be the most informative one among all the candidates. An empirical analysis is also provided, which focuses on the risk measurement in energy stock prices of Thailand namely Petroleum Authority of Thailand (PTT), PTT Exploration and Production Public Company Limited (PTTEP), IRPC Public Company Limited (IRPC), Bangchak Corporation Public Company Limited (BCP), Thai Oil Public Company Limited (TOP). The degree of risk is measured by the most informative quantile regression coefficient in each regime. The result found that the Markov regime-switching quantile regression model of unknown quantile can explain the behavior of the data better and more accurately. Suggestions during the downturn should be choose stocks with low beta or cash in order to reduce the risk of price volatility and in an uptrend should select stocks with high beta for higher returns.