

ABSTRAK

METODE REGRESI SPEKTRAL DAN EXACT MAXIMUM LIKELIHOOD DALAM PENDUGAAN PARAMETER MODEL AUTOREGRESSIVE FRACTIONALLY INTEGRATED MOVING AVERAGE (ARFIMA)

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Model *Autoregressive Fractionally Integrated Moving Average* (ARFIMA) merupakan pengembangan dari model ARIMA dengan nilai *differencing* (d) bilangan real. Pada penelitian ini, model ARFIMA digunakan untuk memodelkan data harga emas di Indonesia. Pendugaan parameter model ARFIMA dilakukan dalam tiga tahap, yaitu tahap pertama dan kedua menduga parameter AR dan MA dengan menggunakan metode *Exact Maximum Likelihood* (EML) dan tahap ketiga menduga parameter *differencing* (d) dengan menggunakan metode Regresi Spektral (GPH). Berdasarkan metode Geweke dan Porter Hudak (GPH) diperoleh model ARFIMA dengan nilai parameter $d = 0.406483$, dan berdasarkan nilai AIC, BC dan HQ terkecil model terbaik adalah ARFIMA (1, $d[0.406483]$, 4) dengan nilai MAPE sebesar 0.39%

Kata Kunci: *Time series, ARFIMA, Long memory, Fractional Integrated.*

ABSTRACT

SPECTRAL REGRESSION METHOD AND EXACT MAXIMUM LIKELIHOOD IN ESTIMATION THE *AUTOREGRESSIVE FRACTIONALLY INTEGRATED MOVING AVERAGE (ARFIMA) MODEL* PARAMETERS

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Autoregressive Fractionally Integrated Moving Average (ARFIMA) model is a development of the ARIMA model with differencing (d) as a real number. The purposes of this research were to analyze data of gold price in Indonesia with the estimation of the ARFIMA model parameters is divided into three stages, namely the first and second stages estimation the AR and MA model parameters using the exact maximum likelihood method, and then the third stage estimation the parameter differencing (d) using the spectral regression method (GPH). Based on the Geweke and Porter Hudak (GPH) method, the parameter d of the ARFIMA model is 0.406483 and based on the smallest AIC, BC, and HQ, the best ARFIMA model is $(1, d[0.406483], 4)$ with MAPE value of 0.39%.

Kata Kunci: Time series, ARFIMA, Long memory, Fractional Integrated.