ABSTRACT

APPLICATION OF THE AUTOREGRESSIVE DISTRIBUTED LAG (ARDL) DYNAMIC MODEL USING THE KOYCK AND ALMON APPROACH IN PREDICTING PROFITABILITY AT PT. BANK RAKYAT INDONESIA

By

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In the world of banking, profitability is very concerned to measure the effectiveness of the company in obtaining profits. This study aims to determine the model and predict profitability at PT. Bank Rakyat Indonesia. The method used is the Autoregressive Distributed Lag (ARDL) dynamic model with the Koyck method approach and the Almon method using Eviews 10 software. The data used are ROA, CAR, BOPO and LDR. This data is time series data for the quarterly period as of March 2008 - December 2022 taken from the financial reports of PT. Bank Rakyat Indonesia (Persero) Tbk published by the Financial Services Authority (OJK). Based on the research results obtained, the best model chosen is the Almon distributed lag model because it has the smallest MAPE value compared to the ARDL model, which is 4,74%. Almon's distributed lag model has an optimum lag length ($k = 4$) with polynomial degrees ($m = 2$), namely:

$$\hat{Y}_t = 12{,}9184 + 0{,}0074X_{1t} - 0{,}0007X_{1t-1} - 0{,}0172X_{1t-2} - 0{,}0421X_{1t-3} - 0{,}0753X_{1t-4} - 0{,}0763X_{2t} - 0{,}0276X_{2t-1} - 0{,}0014X_{2t-2} + 0{,}0023X_{2t-3} - 0{,}0165X_{2t-4} - 0{,}0034X_{3t} + 0{,}0146X_{3t-1} + 0{,}0181X_{3t-2} + 0{,}0072X_{3t-3} - 0{,}0182X_{3t-4}$$

Based on the Almon distributed lag assumption model, the predicted profitability of PT. Bank Rakyat Indonesia in Q1 2023 is 4,13%.

Keywords: autoregressive distributed lag, koyck, almon, profitability.

ABSTRAK

PENERAPAN MODEL DINAMIS *AUTOREGRESSIVE DISTRIBUTED LAG* (ARDL) MENGGUNAKAN PENDEKATAN KOYCK DAN ALMON DALAM MEMPREDIKSI PROFITABILITAS PADA PT. BANK RAKYAT INDONESIA

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Dalam dunia perbankan, profitabilitas sangat diperhatikan untuk mengukur keefektivan perusahaan dalam memperoleh keuntungan. Penelitian ini bertujuan untuk menentukan model dan memprediksi profitabilitas pada PT. Bank Rakyat Indonesia. Metode yang digunakan yaitu model dinamis *Autoregressive Distributed Lag* (ARDL) dengan pendekatan metode Koyck dan metode Almon menggunakan bantuan s*oftware* Eviews 10. Data yang digunakan yaitu ROA, CAR, BOPO dan LDR. Data tersebut merupakan data *time series* dengan periode triwulan per Maret 2008 – Desember 2022 yang diambil dari laporan keuangan PT. Bank Rakyat Indonesia (Persero) Tbk yang dipublikasikan oleh Otoritas Jasa Keuangan (OJK). Berdasarkan hasil penelitian yang diperoleh, model terbaik yang dipilih adalah model *distributed lag* Almon karena memiliki nilai MAPE terkecil dibanding dengan model ARDL yaitu sebesar 4,74%. Model *distributed lag* Almon memiliki panjang *lag* optimum ($k = 4$) dengan derajat polinomial ($m = 2$) yaitu:

$$\hat{Y}_t = 12{,}9184 + 0{,}0074X_{1t} - 0{,}0007X_{1t-1} - 0{,}0172X_{1t-2} - 0{,}0421X_{1t-3} - 0{,}0753X_{1t-4} - 0{,}0763X_{2t} - 0{,}0276X_{2t-1} - 0{,}0014X_{2t-2} + 0{,}0023X_{2t-3} - 0{,}0165X_{2t-4} - 0{,}0034X_{3t} + 0{,}0146X_{3t-1} + 0{,}0181X_{3t-2} + 0{,}0072X_{3t-3} - 0{,}0182X_{3t-4}$$

Berdasarkan model dugaan *distributed lag* Almon tersebut diperoleh prediksi profitabilitas PT. Bank Rakyat Indonesia pada periode Q1 2023 sebesar 4,13%.

Kata kunci: *autoregressive distributed lag*, koyck, almon, profitabilitas.