ABSTRACT

Bonds are debt securities issued by governments or corporations to raise funds from investors. Based on the issuer, bonds are categorized into two types: corporate bonds and government bonds. When deciding to invest in bonds, investors must consider the yield they will obtain. The relationship between yield and bond maturity is analyzed within a concept known as the term structure of interest rates, which is illustrated through a yield curve. To construct a yield curve, there are two main approaches: parametric and nonparametric methods. The parametric method was developed by Nelson-Siegel (1987), while the nonparametric method was introduced by McCulloch (1971). McCulloch's nonparametric cubic B-spline method has proven to be more stable and perform better in constructing the yield curve compared to Nelson-Siegel's parametric model. The data used in this study consists of sample transaction data for Indonesian government bonds with the FR (Fixed Rate) code on December 12, 2024. From this data, models were built using 5 types of selected knot points. Model parameters were estimated using the Ordinary Least Squares (OLS) method. The results of this research indicate that the best yield curve model was constructed from 3 knot points, achieving a Root Mean Square Error (RMSE) of 0.085 and a Mean Absolute Percentage Error (MAPE) of 0.814%. These values demonstrate that the model possesses very good accuracy.

Keywords: Bonds, Government Bonds, Yield, Yield Curve, Cubic B-Spline, RMSE, and MAPE