

Abstract

The primary objective of this study was to determine the best parametric model that can be used for fitting yield curves for a bank between Nelson-Siegel model and Nelson-Siegel-Svensson. The fitted curves needed to be smooth and stable so that they can be used as reference curves in setting up a Fund Transfer Pricing system for a Zimbabwean Bank needed for asset and liability management. Nelson-Siegel and Nelson-Siegel-Svensson models are discussed in literature review and the estimation of parameters was carried out using Ordinary Least Squares after fixing the shape parameters to make the models linear models. A t-test conducted is conducted on the adjusted R^2 of the two models and results showed that Nelson-Siegel-Svensson model fits better the yield curves of the Bank compared to Nelson-Siegel model. An analysis of the out-of-sample forecasting abilities of the two models using AR(1) conducted using E-views shows that the two parametric models have excellent out-of-sample forecasting abilities on all of their parameters. The time independent of Nelson-Siegel-Svensson model was found to be negative in most of the time and could not be interpreted as a long run yield of the Bank. It is also highlighted that the models produces very low levels of R^2 in many cases because of the high volatility that is found in the market interest rates of certificates of deposits. Results from this study can be used for FTP systems.

Key words: Fund transfer price, Nelson-Siegel, Nelson-Siegel-Svensson, yield curve, out-of-sample forecasting.