

**A Machine Learning Approach to Forecasting the Philippine Yield Curve**

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Abstract

There is a growing corpus of literature on the use of machine learning in yield curve analysis and prediction, with many highlighting the performance gains of machine learning models over standard econometric analysis. The study presented is the first to apply machine learning methods to the context of Philippine yield curve. Several machine learning models were implemented in analyzing the different tenors of Philippine Treasury securities: k-nearest neighbors (kNN), random forest, and support vector machines (SVM). These were compared to standard sensitivity analysis using ordinary least squares (OLS) estimation. The results are promising in that the machine learning models significantly explain the variation in all tenors. The results also highlight the potential benefits of using machine learning approaches for yield curve forecasting, particularly in stress testing practices and fixed-income fund pricing. Given the applicability of machine learning methods to the Philippine context, the benefits can also be extended to yield curve analysis of emerging sovereigns in southeast Asia.

Biography

Mr. Armin Paul Allado serves as the Division Chief of Risk Management Division for the Bureau of the Treasury, supervising the risk analytics and monitoring function of the agency. He is also a part-time lecturer in Operations Research at the Ateneo de Manila University and University of Asia & Pacific. Prior to his current post, he served as Chief Market Strategist for the Fund Management Division and Technical Assistant for the Debt and Risk Management Division also at the Bureau of the Treasury. He is currently taking MSc in Analytics at Georgia Institute of Technology. He previously finished MSc in Finance at the London School of Economics and MSc in Applied Mathematics at the University of the Philippines in Diliman. He graduated BSc in Management Engineering, Minor in Financial Management.