



## Empirical Evidence on the Causality among Yield Curve Factors and Macroeconomic Determinants

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**Abstract:** This paper explores the relationship between macroeconomic determinants and yield curve factors based on the Nelson and Siegel (1987) model. We also examine the effect of feedback relationship and model predictability on the aforementioned variables. More specifically, we assume that the time-decay parameter ( $\tau$ ) is time-varying and use the VAR (vector auto-regression) model to investigate the relationship between four yield curve factors (level parameter,  $\beta_0$ ; slope parameter,  $\beta_1$ ; curvature parameter,  $\beta_2$ ; and time-decay parameter,  $\tau$ ) and three macroeconomic determinants (consumer price inflation rate, bank discount rate, and inventory rate). In addition, we use the variance decomposition and impulse response analysis to examine the dynamic interactions of all above variables. The results reveal that, during the observation period, the time-decay parameter ( $\tau$ ) exhibits a major contributing factor to macroeconomic determinants and cannot be ignored. Moreover, we find the strong evidence of the effects of yield curve on future movements in macroeconomic determinants and evidence for a reverse influence as well. Finally, from the predictability analysis on the yield curve factors and macroeconomic determinants, we conclude that the predictions of yield curve factors, bank discount rate, and consumer price inflation can be more accurate when previous macroeconomic determinants and yield curve factors information are taken into account. This conclusion provides related institutions relatively rich information in establishing their financial policy and investment strategy.

**Keywords:** Macroeconomic determinants, Yield curve factors, VAR model

### 1. Introduction

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