

In this thesis, we focus on thorough yield curve modelling. We build on extended classical Nelson-Siegel model, which we further develop to accommodate unobserved regional common factors and principal components. We centre our discussion on central European currencies' yield curves: CZK, HUF, PLN and SKK.

We propose two novel models to capture regional dynamics; one based purely on state space formulation and the other relying also on principal components of the regional yield curves. Moreover, we supplement the models with two application examples in risk management and structural break detection.

The main contribution of this thesis is a creation of a complete framework that enables us to analyse yield curves, to design risk scenarios and to detect structural breaks of various types.