Support to the State Social Protection Fund on the introduction of funded element within the insurance-pension system, establishment of non-state pension funds and development of legal framework for regulating their activity
Twinning Project AZ/13/ENP/SO/24

ANNEX 70

Introduction inTime Series Models

The main aim of time series modeling is to carefully collect and rigorously study the past observations of a time series to develop an appropriate model which describes the inherent structure of the series. This model is then used to generate future values for the series, i.e. to make forecasts.

ARIMA

Autoregressive Integrated Moving Average model

- AR autoregressive models
- I integrated models
- MA moving average models

ANNs

Artificial neural networks

- multi-layer perceptrons (MLPs)
- the *Time Lagged Neural Network (TLNN)*
- *Seasonal Artificial Neural Network (SANN)* model

SVM

Support vector machine

- Use the *structural risk minimization (SRM)* principle to find a decision rule with good generalization capacity
- here the training is equivalent to solving a linearly constrained quadratic optimization problem
- the quality and complexity of the solution can be independently controlled, irrespective of the dimension of the input space
- *Least-square SVM (LS-SVM)*
- *Dynamic Least-square SVM (LSSVM)*

ARCH

autoregressive conditional heteroskedasticity

Wide variety of representation:

- *Generalized ARCH (**GARCH**)*
- Threshold GARCH (**TARCH**)
- *Exponential Generalized ARCH (**EGARCH**)*
- Family GARCH (**FIGARCH**)etc.

changes in variability are related to, or predicted by, recent past values of the observed series.

Four main components:

- Trend
- Cyclical
- Seasonal
- Irregular

Thank you