NDK_SARIMAX_FORE

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int __stdcall NDK_SARIMAX_FORE (	double *	pData,
	double **	pFactors,
	size_t	nSize,
	size_t	nFactors,
	double *	fBetas,
	double	mean,
	double	sigma,
	WORD	nIntegral,
	double *	phis,
	size_t	p,
	double *	thetas,
	size_t	q,
	WORD	nSIntegral,
	WORD	nSPeriod,
	double *	sPhis,
	size_t	sP,
	double *	sThetas,
	size_t	sQ,
	size_t	nStep,
	FORECAST_RETVAL_FUNC	retType,
	double	alpha,
	double *	retVal
)		

Calculates the out-of-sample forecast statistics.

Returns

status code of the operation

Return values

NDK_SUCCESS Operation successful

NDK_FAILED Operation unsuccessful. See **Macros** for full list.

Parameters

[in] **pData** is the univariate time series data (a one dimensional array).

[in]	**pFactors**	is the exogneous factors time series data (each column is a separate factor, and each row is an observation).
[in]	**nSize**	is the number of observations.
[in]	**nFactors**	is the number of exognous factors
[in,out]	**fBetas**	is the weights or loading of the exogneous factors
[in,out]	**mean**	is the mean of the ARMA process
[in]	**sigma**	is the standard deviation of the model's residuals/innovations.
[in]	**nIntegral**	is the non-seasonal difference order
[in]	**phis**	are the coefficients's values of the non-seasonal AR component
[in]	**p**	is the order of the non-seasonal AR component
[in]	**thetas**	are the coefficients's values of the non-seasonal MA component
[in]	**q**	is the order of the non-seasonal MA component
[in]	**nSIntegral**	is the seasonal difference
[in]	**nSPeriod**	is the number of observations per one period (e.g. 12=Annual, 4=Quarter)
[in]	**sPhis**	are the coefficients's values of the seasonal AR component
[in]	**sP**	is the order of the seasonal AR component
[in]	**sThetas**	are the coefficients's values of the seasonal MA component
[in]	**sQ**	is the order of the seasonal MA component
[in]	**nStep**	is the forecast time/horizon (expressed in terms of steps beyond end of the time series).
[in]	**retType**	is a switch to select the type of value returned:

Order	Description
1	Fitted mean (default)
2	Fitted standard deviation or volatility
3	Raw (non-standardized) residuals
4	Standardized residuals

[in]	**alpha**	is the statistical significance level. If missing, a default of 5% is assumed.
[out]	**retVal**	is the calculated forecast value

Remarks

1. The underlying model is described **here.**
2. The time series is homogeneous or equally spaced
3. The time series may include missing values (e.g. NaN) at either end.
4. Each column in the explanatory factors input matrix (i.e. X) corresponds to a separate variable.
5. Each row in the explanatory factors input matrix (i.e. X) corresponds to an observation.
6. Observations (i.e. rows) with missing values in X or Y are assumed missing.
7. The number of rows of the explanatory variable (X) must be at equal to the number of rows of the response variable (Y).

8. The time series may include missing values (e.g. NaN) at either end.
9. The intercept or the regression constant term input argument is optional. If omitted, a zero value is assumed.
10. For the input argument - Beta:
    - The input argument is optional and can be ommitted, in which case no regression component is included (i.e. plain SARIMA).
    - The order of the parameters defines how the exogneous factor input arguments are passed.
11. The long-run mean argumen (mean) of the differenced regression residuals can take any value. If ommitted, a zero value is assumed.
12. The residuals/innovations standard deviation (sigma) must greater than zero.
13. For the input argument - phi (parameters of the non-seasonal AR component):
    - The input argument is optional and can be ommitted, in which case no non-seasonal AR component is included.
    - The order of the parameters starts with the lowest lag
    - The order of the non-seasonal AR component model is solely determined by the order of the last value in the array with a numeric value (vs. missing, or error).
14. For the input argument - theta (parameters of the non-seasonal MA component):
    - The input argument is optional and can be ommitted, in which case no non-seasonal MA component is included.
    - The order of the parameters starts with the lowest lag
    - The order of the non-seasonal MA component model is solely determined by the order of the last value in the array with a numeric value (vs. missing, or error).
15. For the input argument - sPhi (parameters of the seasonal AR component):
    - The input argument is optional and can be ommitted, in which case no seasonal AR component is included.
    - The order of the parameters starts with the lowest lag
    - The order of the seasonal AR component model is solely determined by the order of the last value in the array with a numeric value (vs. missing, or error).
16. For the input argument - sTheta (parameters of the seasonal MA component):
    - The input argument is optional and can be ommitted, in which case no seasonal MA component is included.
    - The order of the parameters starts with the lowest lag
    - The order of the seasonal MA component model is solely determined by the order of the last value in the array with a numeric value (vs. missing, or error).
17. The non-seasonal integration order - d - is optional and can be ommitted, in which case d is assumed zero.
18. The seasonal integration order - sD - is optional and can be ommitted, in which case sD is assumed zero.
19. The season length - s - is optional and can be ommitted, in which case s is assumed zero (i.e. Plain ARIMA).

Requirements

Examples

References

Hamilton, J .D.; [Time Series Analysis](), Princeton University Press (1994), ISBN 0-691-04289-6

Tsay, Ruey S.; [Analysis of Financial Time Series]() John Wiley & SONS. (2005), ISBN 0-471-690740

See Also

[template("related")]