NDK_ARIMA_FORE

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- C/C++
- .Net

int __stdcall NDK_ARIMA_FORE(double *		**pData**,
	size_t	**nSize**,
	double	**mean**,
	double	**sigma**,
	WORD	**nIntegral**,
	double *	**phis**,
	size_t	**p**,
	double *	**thetas**,
	size_t	**q**,
	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] **nSize** is the number of observations in pData.

[in] **mean** is the ARMA model mean (i.e. mu).

[in] **sigma** is the standard deviation of the model's residuals/innovations.

[in] **nIntegral** is the model's integration order.

[in] **phis** are the parameters of the AR(p) component model (starting with the lowest lag).

[in] **p** is the number of elements in phis (order of AR component)

[in] **thetas** are the parameters of the MA(q) component model (starting with the lowest lag).

[in] **q** is the number of elements in thetas (order of 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	Mean forecast value (default)

	2	Forecast standard error (aka local volatility)
	3	Volatility term structure
	4	Lower limit of the forecast confidence interval
	5	Upper limit of the forecast confidence interval

[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. #N/A) at either end.
4. The integration order argument (d) must be a positive integer.
5. The long-run mean can take any value or may be omitted, in which case a zero value is assumed.
6. The residuals/innovations standard deviation (sigma) must be greater than zero.
7. For the input argument (phi):
   - The input argument is optional and can be omitted, in which case no AR component is included.
   - The order of the parameters starts with the lowest lag.
   - The order of the AR component model is solely determined by the order of the last value in the array with a numeric value (vs. missing or error).
8. For the input argument (theta):
   - The input argument is optional and can be omitted, in which case no MA component is included.
   - The order of the parameters starts with the lowest lag.
   - The order of the MA component model is solely determined by the order of the last value in the array with a numeric value (vs. missing or error).

Requirements

Header	SFSDK.H
Library	SFSDK.LIB
DLL	SFSDK.DLL

Examples

int NDK_ARIMA_FORE(double[]	pData,	Namespace: NumXLAPI
UIntPtr	nSize,	Class: SFSDK
double	mean,	Scope: Public
double	sigma,	Lifetime: Static
short	nIntegral,	
double[]	phis,	
UIntPtr	p,	
double[]	thetas,	
UIntPtr	q,	
UIntPtr	nStep,	
FORECAST_RETVAL_FUNC	retType,	
double	alpha,	
ref double	retVal	
)		

Calculates the out-of-sample forecast statistics.

Return Value

a value from **NDK_RETCODE** enumeration for the status of the call.

NDK_SUCCESS operation successful
Error   Error Code

Parameters

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

[in] **nSize**   is the number of observations in pData.

[in] **mean**   is the ARMA model mean (i.e. mu).

[in] **sigma**   is the standard deviation of the model's residuals/innovations.

[in] **nIntegral** is the model's integration order.

[in] **phis**   are the parameters of the AR(p) component model (starting with the lowest lag).

[in] **p**   is the number of elements in phis (order of AR component)

[in] **thetas**   are the parameters of the MA(q) component model (starting with the lowest lag).

[in] **q**   is the number of elements in thetas (order of 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
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[out] **retVal**   is the calculated forecast value

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   - The input argument is optional and can be omitted, in which case no MA component is included.
   - The order of the parameters starts with the lowest lag.
   - The order of the MA component model is solely determined by the order of the last value in the array with a numeric value (vs. missing or error).

Exceptions

Exception Type	Condition
None	N/A

Requirements

Namespace	NumXLAPI
Class	SFSDK
Scope	Public
Lifetime	Static
Package	NumXLAPI.DLL

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")]