

# NDK\_SARIMA\_VALIDATE

Last Modified on 04/28/2016 12:35 pm CDT

- C/C++
- .Net

```
int __stdcall NDK_SARIMA_VALIDATE(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
                                   )
```

Examines the model's parameters for stability constraints (e.g. stationary, etc.).

## Returns

status code of the operation

## Return values

**NDK\_SUCCESS** Operation successful

**NDK\_FAILED** Operation unsuccessful. See [Macros](#) for full list.

## Parameters

- |                        |  |
|------------------------|--|
| [in] <b>mean</b>       | is the model mean (i.e. $\mu$ ).   |
| [in] <b>sigma</b>      | is the standard deviation of the model's residuals/innovations.          |
| [in] <b>nIntegral</b>  | is the non-seasonal difference order                                     |
| [in] <b>phis</b>       | are the coefficients's values of the non-seasonal AR component           |
| [in] <b>p</b>          | is the order of the non-seasonal AR component                            |
| [in] <b>thetas</b>     | are the coefficients's values of the non-seasonal MA component           |
| [in] <b>q</b>          | is the order of the non-seasonal MA component                            |
| [in] <b>nSIntegral</b> | is the seasonal difference   |
| [in] <b>nSPeriod</b>   | is the number of observations per one period (e.g. 12=Annual, 4=Quarter) |
| [in] <b>sPhis</b>      | are the coefficients's values of the seasonal AR component               |
| [in] <b>sP</b>         | is the order of the seasonal AR component                                |
| [in] <b>sThetas</b>    | are the coefficients's values of the seasonal MA component               |
| [in] <b>sQ</b>         | is the order of the seasonal MA component                                |

## 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. `NDK_SARIMA_CHECK` checks if  $\sigma > 0$  and if all the characteristic roots of the underlying ARMA model fall outside the unit circle.
5. The long-run mean argument (mean) can take any value or 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 (parameters of the non-seasonal AR component):
  - The input argument is optional and can be omitted, 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).
8. For the input argument - theta (parameters of the non-seasonal MA component):
  - The input argument is optional and can be omitted, 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).
9. For the input argument - sPhi (parameters of the seasonal AR component):
  - The input argument is optional and can be omitted, 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).
10. For the input argument - sTheta (parameters of the seasonal MA component):
  - The input argument is optional and can be omitted, 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).
11. The non-seasonal integration order - d - is optional and can be omitted, in which case d is assumed to be zero.
12. The seasonal integration order - sD - is optional and can be omitted, in which case sD is assumed to be zero.
13. The season length - s - is optional and can be omitted, in which case s is assumed to be zero (i.e. plain ARIMA).

## Requirements



<b>Header</b>	SFSDK.H
<b>Library</b>	SFSDK.LIB
<b>DLL</b>	SFSDK.DLL

## Examples

```
int NDK_SARIMA_VALIDATE(double mean,
                       double sigma,
                       short nIntegral,
                       double[] phis,
                       UIntPtr p,
                       double[] thetas,
                       UIntPtr q,
                       short nSIntegral,
                       double[] sPhis,
                       UIntPtr sP,
                       double[] sThetas,
                       UIntPtr sQ
                       )
```

<b>Namespace:</b> NumXLAPI
<b>Class:</b> SFSDK
<b>Scope:</b> Public
<b>Lifetime:</b> Static

Examines the model's parameters for stability constraints (e.g. stationary, etc.).

### Return Value

a value from [NDK\\_RETCODE](#) enumeration for the status of the call.

**NDK\_SUCCESS** operation successful

Error                      Error Code

### Parameters

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

## 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. `NDK_SARIMA_CHECK` checks if  $\sigma > 0$  and if all the characteristic roots of the underlying ARMA model fall outside the unit circle.
5. The long-run mean argument (mean) can take any value or 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 (parameters of the non-seasonal AR component):
  - The input argument is optional and can be omitted, 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).
8. For the input argument - theta (parameters of the non-seasonal MA component):
  - The input argument is optional and can be omitted, 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).
9. For the input argument - sPhi (parameters of the seasonal AR component):
  - The input argument is optional and can be omitted, 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).
10. For the input argument - sTheta (parameters of the seasonal MA component):
  - The input argument is optional and can be omitted, 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).
11. The non-seasonal integration order - d - is optional and can be omitted, in which case d is assumed to be zero.
12. The seasonal integration order - sD - is optional and can be omitted, in which case sD is

assumed to be zero.

- The season length -  $s$  - is optional and can be omitted, in which case  $s$  is assumed to be zero (i.e. plain ARIMA).

### Exceptions

Exception Type	Condition
None	N/A

### Requirements

<b>Namespace</b>	NumXLAPI
<b>Class</b>	SFSDK
<b>Scope</b>	Public
<b>Lifetime</b>	Static
<b>Package</b>	NumXLAPI.DLL

### Examples

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### 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\("related"\)](#)]

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