

# **SARIMA**( $p, d, q$ ) $\times$ ( $P, D, Q$ ) <sub>$s$</sub> Notation

$$\phi(L)\Phi(L^s)(1 - L)^d(1 - L^s)^D Y_t = \theta(L)\Theta(L^s) \varepsilon_t$$

## Regular (Non-Seasonal)

$p$  = AR order (Number of AR lags)

$d$  = Differencing (Regular differences)

$q$  = MA order (Number of MA lags)

## Seasonal

$P$  = Seasonal AR (SAR lags at  $s, 2s, \dots$ )

$D$  = Seasonal Diff  $((1 - L^s)^D)$

$Q$  = Seasonal MA (SMA lags at  $s, 2s, \dots$ )

$s$  = Period (Seasonal period)

## Example: SARIMA(1, 1, 1) $\times$ (0, 1, 1)<sub>12</sub>

Monthly data with: AR(1), MA(1), one regular diff,  
one seasonal diff at lag 12, seasonal MA(1)