

# **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)