Invertible MA(1): $\theta = 0.6$
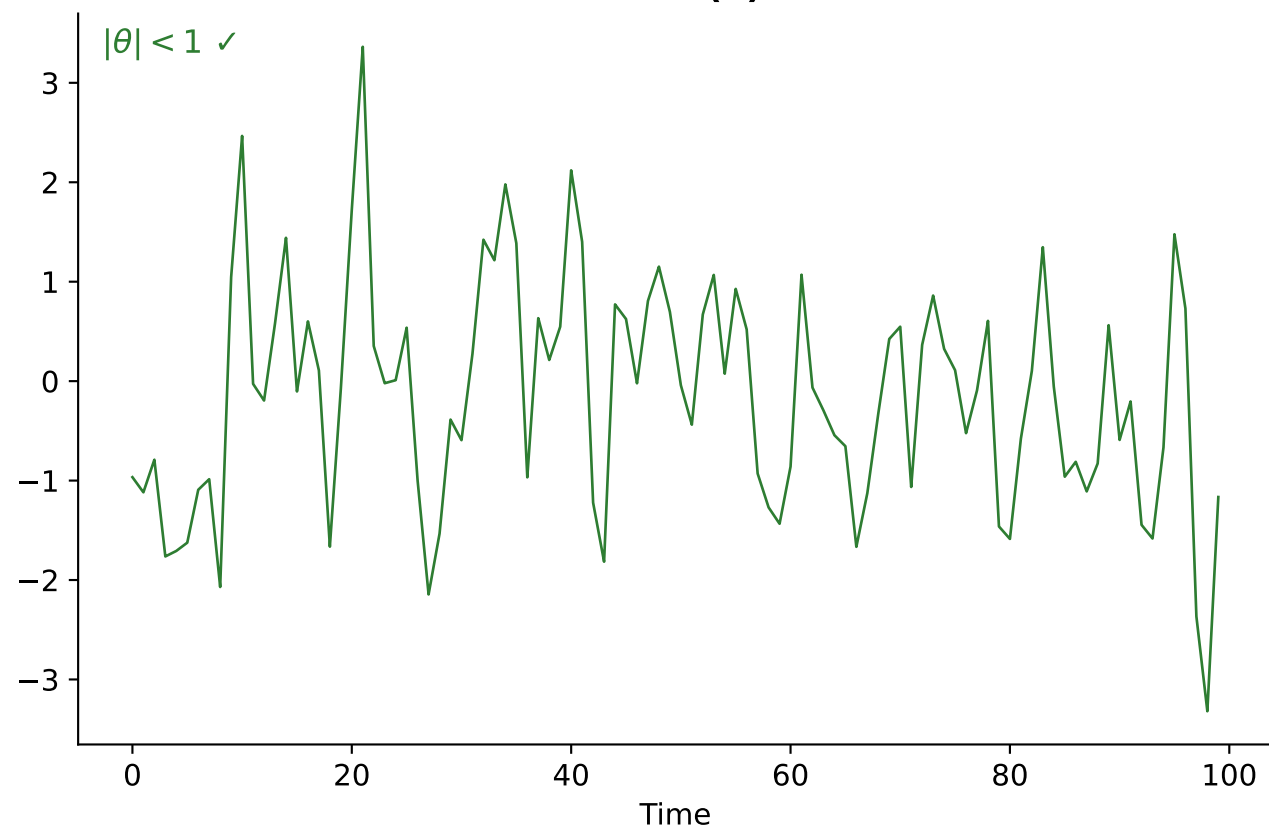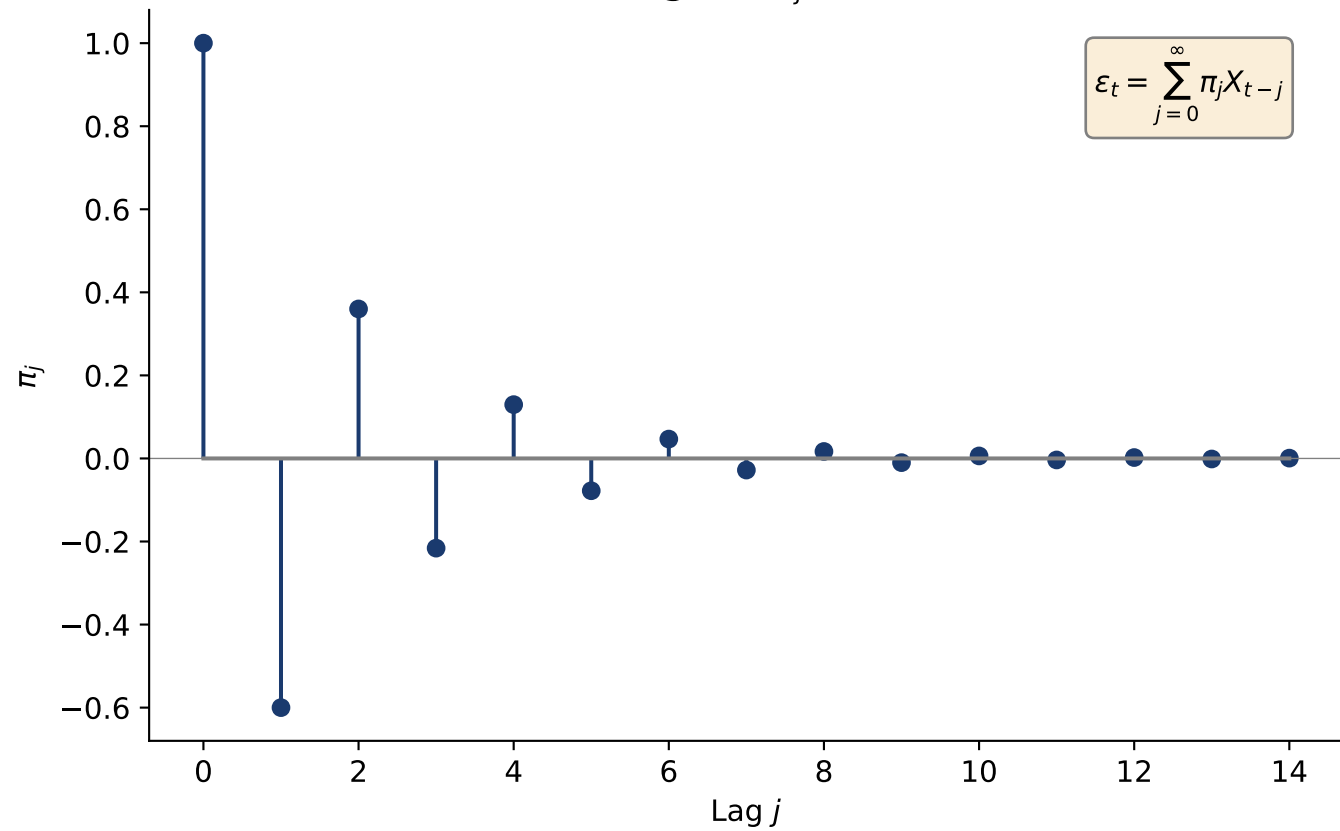
$|\theta| < 1$ ✓

Non-Invertible MA(1): $\theta = 1.5$

MA(1) with $\theta = 1.5$

NOT INVERTIBLE
$|\theta| > 1$

π-weights: $\pi_j = (-\theta)^j$

$$\varepsilon_t = \sum_{j=0}^{\infty} \pi_j X_{t-j}$$

MA Invertibility: Roots of $\theta(z)$

Invertible if roots
OUTSIDE unit circle

$\theta = 0.6$: $|z| = 1.67$
$\theta = 1.5$: $|z| = 0.67$