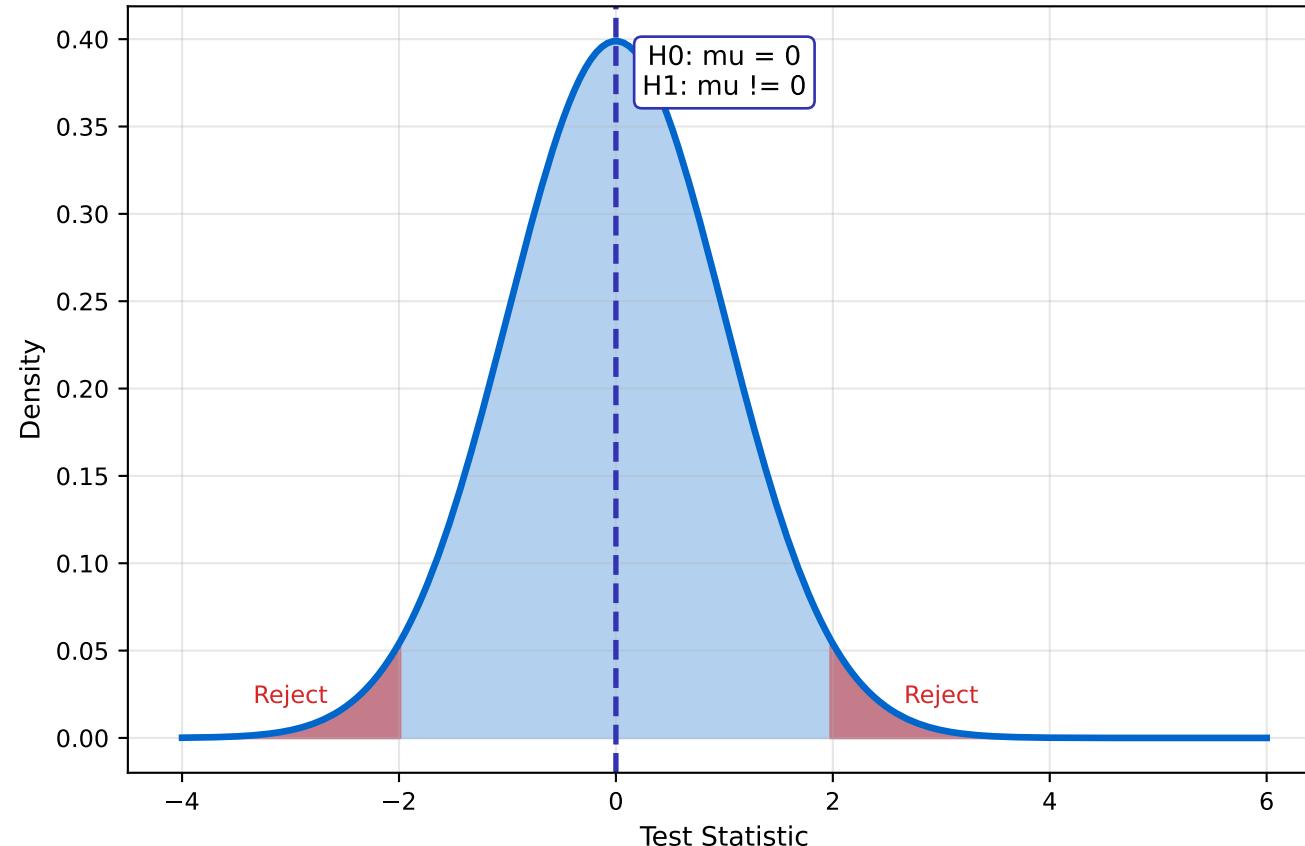
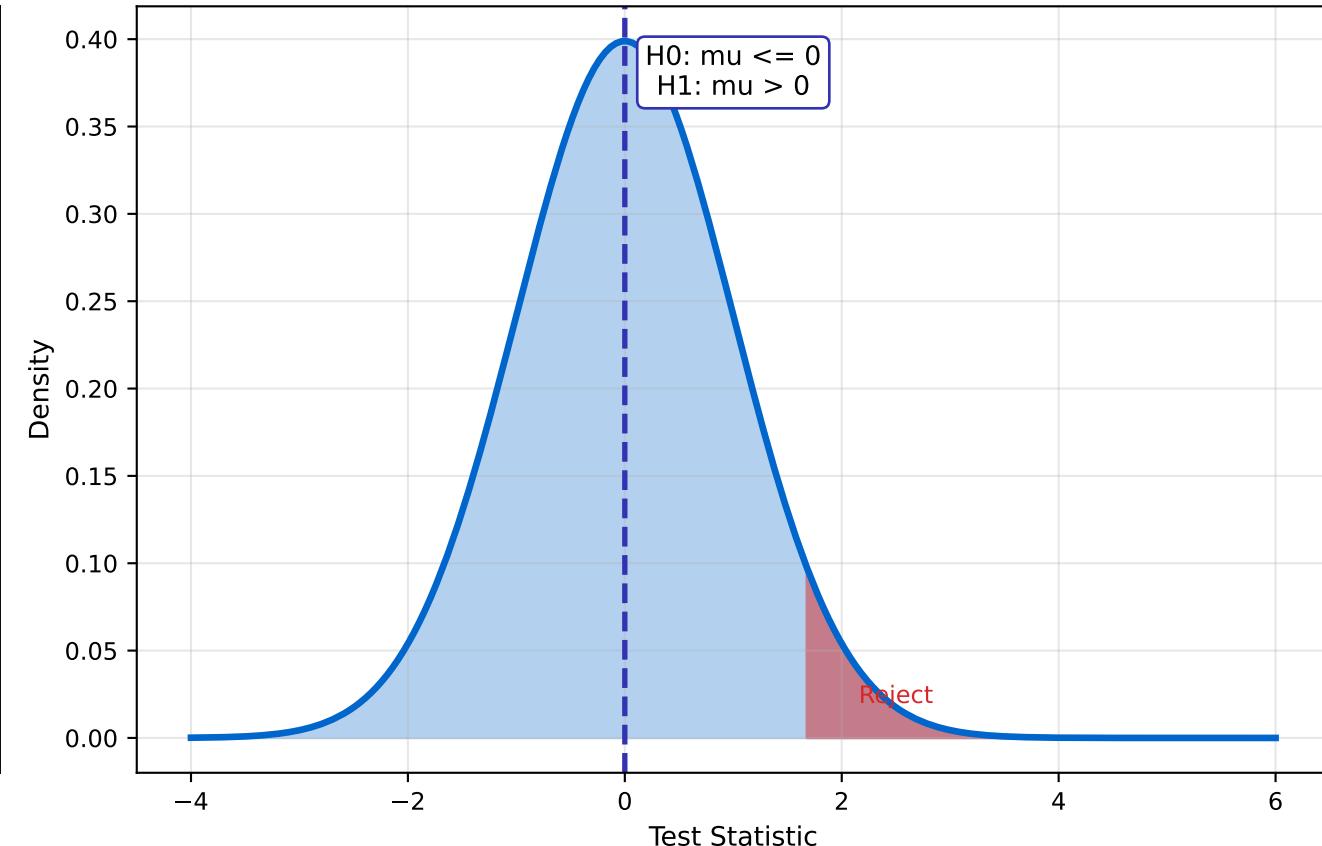


## Null and Alternative Hypotheses

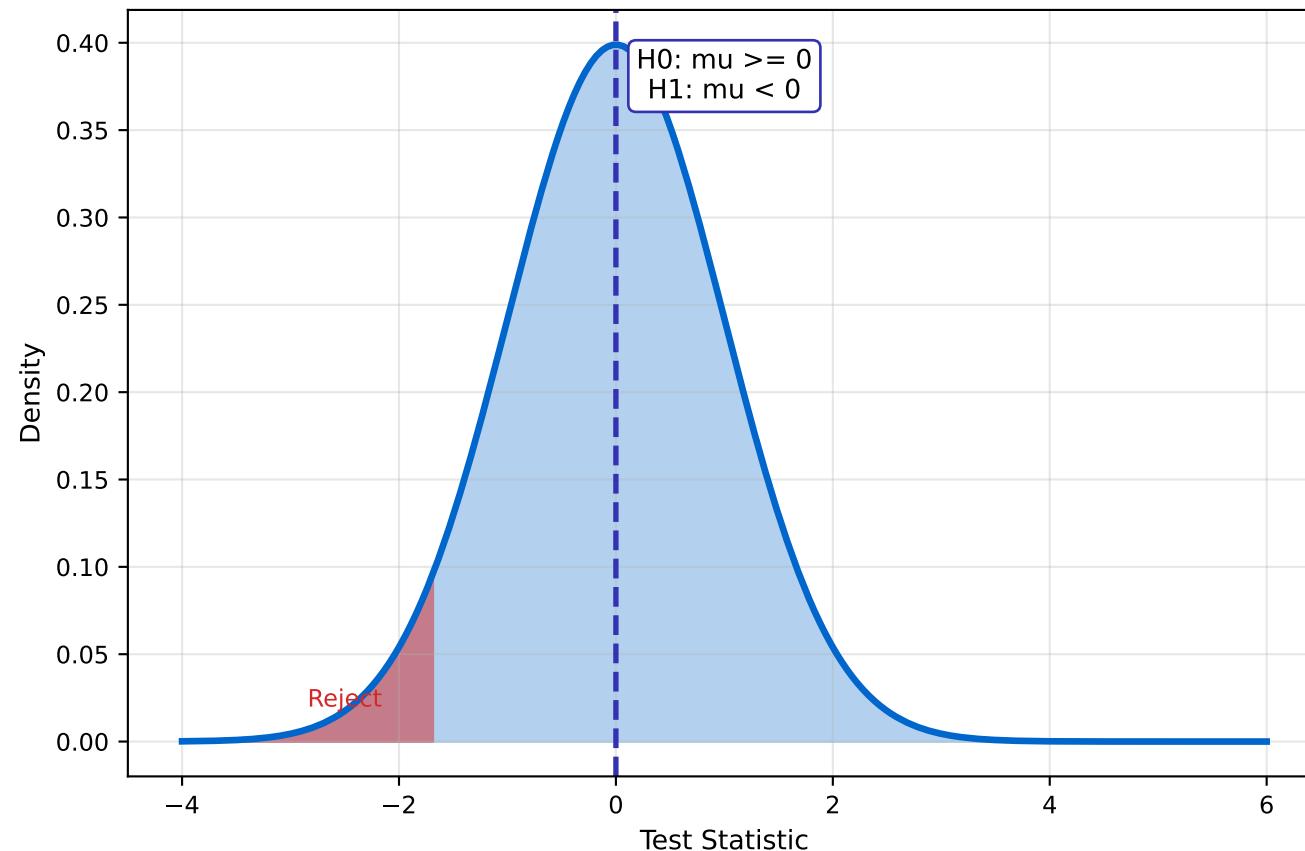
**Two-Tailed: H1:  $\mu \neq 0$**



**Right-Tailed: H1:  $\mu > 0$**



**Left-Tailed: H1:  $\mu < 0$**



## Finance Hypothesis Examples

### Strategy alpha:

$H_0: \alpha = 0$  (no excess return)  
 $H_1: \alpha > 0$  (positive alpha)

Right-tailed

### Market efficiency:

$H_0$ : returns are random  
 $H_1$ : returns are predictable

Two-tailed

### Risk reduction:

$H_0$ : volatility unchanged  
 $H_1$ : volatility decreased

Left-tailed

### Correlation change:

$H_0: \rho_1 = \rho_2$   
 $H_1: \rho_1 \neq \rho_2$

Two-tailed

*Choose test direction based on what you want to prove!*