**Transfer function noise modeling**

**Forecast metrics**

yobs …. vector of target variable (default rates)

yhat …. vector of forecast from tfn

yhat1 … vector of forecast from arma

MSE: mean((yobs – yhat)^2)

MAE: mean(abs(yobs – yhat))

MAPE: mean(abs(1-yhat/yobs))

**Combined forecast:**

yobs – w \* yhat – (1-w) \* yhat1

Equal weight:

w = 0.5

yobs – 0.5 \* yhat – 0.5 \* yhat1

MSE weight:

Rearrange forecast error:

Solve for w

* Solve w analytically from F.O.C
* Solve w numerically using optimize function in r