%% create a vasicek model

ratemodel = hwv(1, 0.03, 0.005,...

'StartState', 0.01);

%% simulate rates

nobs = 360;

nTrials = 2000;

DeltaTime = 1/360;

rr = simulate(ratemodel,...

nobs, 'DeltaTime', DeltaTime, ...

'nTrials', nTrials);

rr = squeeze(rr);

%% Pricing a caplet

%% six month caplet with strike rate

%% of 2%.

notional = 1000000;

strike = 0.02;

caplet\_payoff = notional\*...

max(rr(180,:)-strike,0);

caplet\_price = ...

mean(caplet\_payoff\*exp(-0.01\*1))