

## Oppgave 8

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### Parametre

```
<< "Statistics`ContinuousDistributions`"  
<< "Graphics`Legend`"  
  
{ai, ay, ar, af} = {.58, .55, .90, .74};  
{adi, ari} = {.87, .96};  
{ $\sigma_i$ ,  $\sigma_y$ ,  $\sigma_r$ ,  $\sigma_f$ ,  $\sigma_d$ } = {.04, .16, .19, .18, .07};  
{bdi, bdi0, bdi1} = {.57, .50, -.36};  
{ $\theta_{dy}$ ,  $\theta_{ry}$ ,  $\theta_{yi}$ } = {-.03, .05, 1.79};  
{ $\xi_i$ ,  $\xi_y$ ,  $\xi_r$ ,  $\xi_f$ ,  $\xi_d$ } = {.05, .04, .03, .80, .07};  
i0 = 0.02;  
k = 10;
```

## Simulerer baner

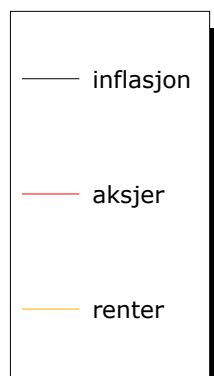
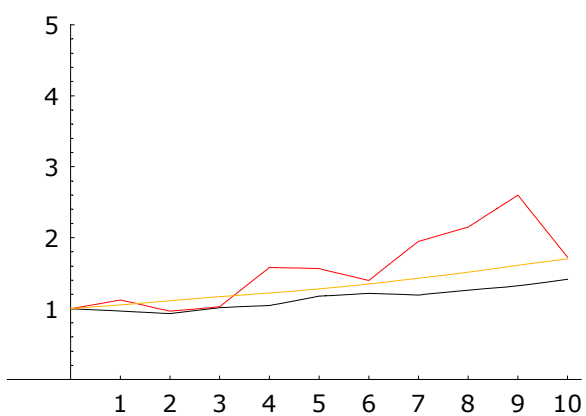
```

simAlle[antall_] := Module[{εi, zi, i}, lp = Table[0, {antall}];
  Do[
    εi = RandomArray[NormalDistribution[0, 1], k];
    zi = Delete[FoldList[ai #1 + σi #2 &, Log[ $\frac{1+i0}{1+\xi i}$ ], εi], 1];
    i = (1 + ξi) ezi - 1;
    q = FoldList[(1 + #2) #1 &, 1, i];
    εy = RandomArray[NormalDistribution[0, 1], k];
    εd = RandomArray[NormalDistribution[0, 1], k];
    zy = Delete[FoldList[ay #1 + σy #2 &, 0, εy], 1];
    zdy = σd (εd + bdi1 Prepend[Delete[εd, -1], 0]) + θdy Prepend[Delete[εy, -1], 0];
    zdi = Delete[FoldList[adi #1 + (bdi0 #2[[1]] + bdi1 #2[[2]]) &,
      0, Transpose[{zi, Prepend[Delete[zi, -1], 0]}]], 1];
    y = Prepend[ξy ezy+θyi zi, ξy];
    id = (1 + ξd) ezdy+zdi - 1;
    d = FoldList[(1 + #2) * #1 &, y[[1]], id];
    s =  $\frac{d}{y}$ ;
    εf = RandomArray[NormalDistribution[0, 1], k];
    εr = RandomArray[NormalDistribution[0, 1], k];
    zf = Delete[FoldList[af #1 + σf #2 &, 0, εf], 1];
    zry = Delete[FoldList[ar #1 + or #2[[1]] + θry #2[[2]] &, 0, Transpose[{εr, εy}]], 1];
    zri = Delete[FoldList[ari #1 + (1 - ari) #2 &, 0, zi], 1];
    rT = ξr ezry + ξi + zri;
    f = ξf ezf;
    r = f rT;
    rAkk = FoldList[#1 #2 &, 1, 1 + r];
    pl = (Interpolation[#1, InterpolationOrder → 1] &) /@ {q, s, rAkk};
    lp[[j]] = Plot[{pl[[1]][x], pl[[2]][x], pl[[3]][x]},
      {x, 1, k + 1}, DefaultFont → {"Verdana", 11}, ImageSize → 500,
      AxesOrigin → {1, 0}, DisplayFunction → Identity, PlotRange → {0, 5},
      PlotStyle → {RGBColor[0, 0, 0], RGBColor[1, 0, 0], RGBColor[1, .7, 0]},
      PlotLegend → {"inflasjon", "aksjer", "renter"},
      LegendPosition → {1.1, -.49}, LegendSize → {.6, 1.1},
      Ticks → {Table[{i + 1, ToString[i]}, {i, 0, k}], Automatic}], {j, 1, antall}];
  ];

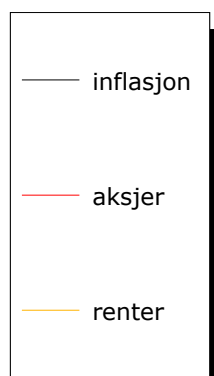
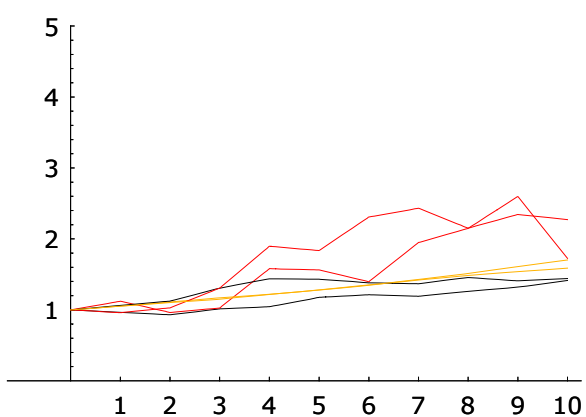
valgtAntall = 10;
simAlle[valgtAntall];
Do[Show[({lp[[#1]]} &) /@ Range[Min[valgtAntall, j]],
  PlotLabel → "Simuleringer:\t" <> ToString[Min[valgtAntall, j]],
  DisplayFunction → $DisplayFunction], {j, 1, valgtAntall}]

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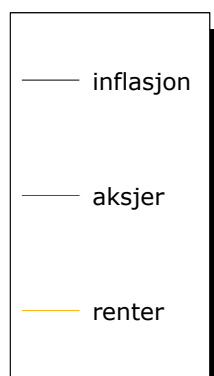
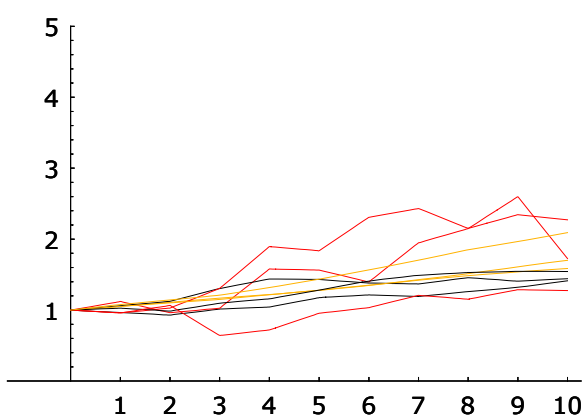
Simuleringer: 1



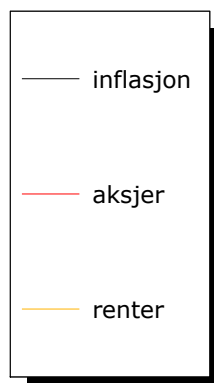
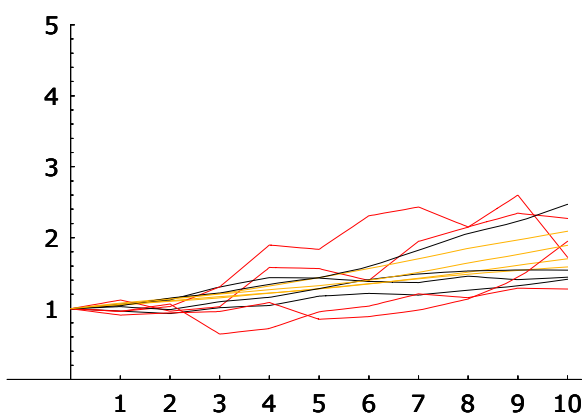
Simuleringer: 2



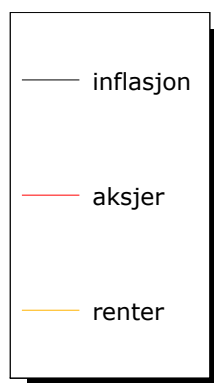
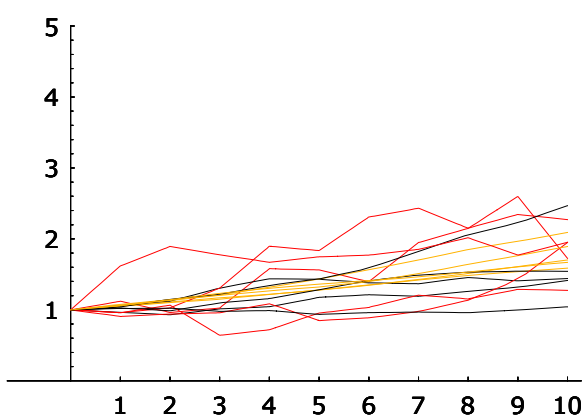
Simuleringer: 3



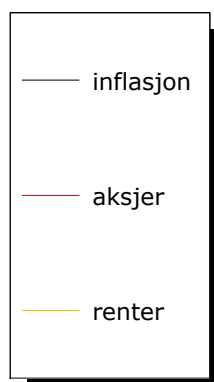
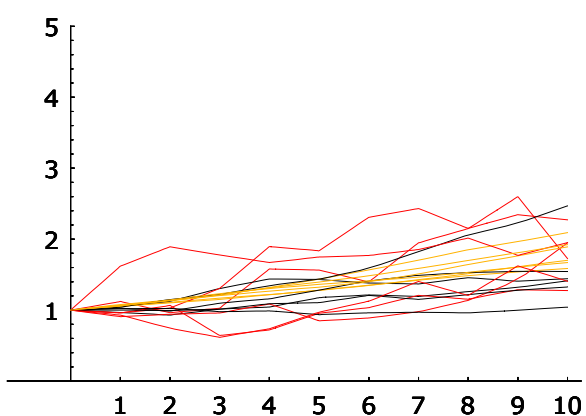
Simuleringer: 4



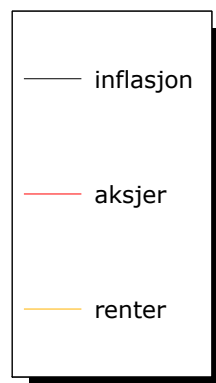
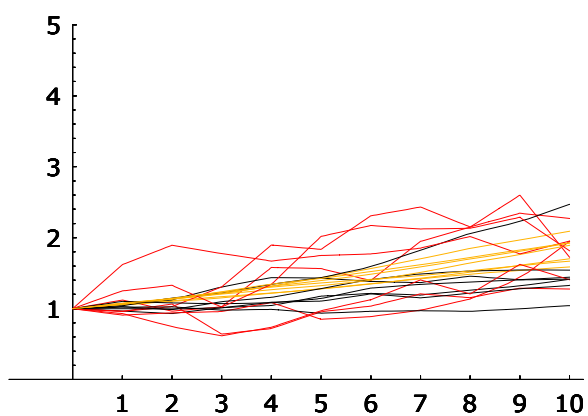
Simuleringer: 5



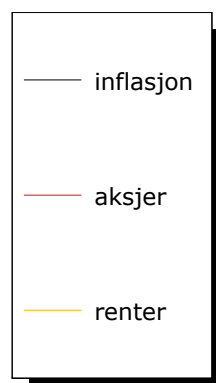
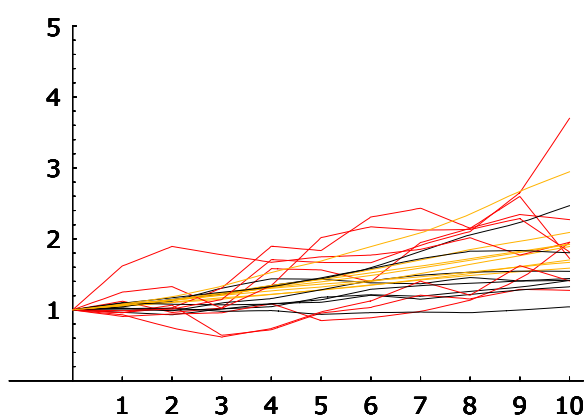
Simuleringer: 6



Simuleringer: 7



Simuleringer: 8



Simuleringer: 9

