Discussion of "Investment Hangover" by Rognline, Shleifer, Simsek

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Observations

- Overaccumulation of capital in the past can cause recession, if monetary policy does not respond
- Overaccumulation of capital in one sector can cause investment drop in another sector, during recession
- Stimulating investment during the recession means a recovery with low interest rates
- However, stimulating investment in the recession is still good

Overaccumulation

- Basic NK model with investment
- Rental rate R, wages w (both real)
- All firms choose optimal mix of capital and labor to produce y

$$\frac{AF_K(K,L)}{AF_L(K,L)} = \frac{R}{w}$$

- Flexible price firms adjust prices based on current and expected real marginal cost

$$m = \frac{w}{AF_L(K,L)} \text{ or } \frac{R}{AF_K(K,L)}$$

- Investment at date t

$$U_C(C_t, L_t) = \beta E_t \left[[1 - \delta + R_{t+1}] U_C(C_{t+1}, L_{t+1}) \right]$$

Investment margin

- Perfect foresight, from two Euler get

$$1 + r_t = R_{t+1} + 1 - \delta$$

so

$$\delta + r_t = w_{t+1} \frac{F_K\left(K_{t+1}, L_{t+1}\right)}{F_L\left(K_{t+1}, L_{t+1}\right)}$$

- The fact that producers tomorrow are constrained to sell Y_{t+1} works through the RHS of this equation
- If monetary policy replicates flex-price at $t+1$ and subsidy fixes monopoly distortion

$$w_{t+1} = A_{t+1} F_L\left(K_{t+1}, L^*_{t+1}\right)$$

so we get

$$\delta + r_t = A_{t+1} F_K\left(K_{t+1}, L^*_{t+1}\right)$$

Investment margin

- But if monetary policy cannot replicate fixed prices we use

$$\delta + r_t = w_{t+1} \frac{F_K(K_{t+1}, L_{t+1})}{F_L(K_{t+1}, L_{t+1})}$$

and

$$Y_t = Z_t F(K_{t+1}, L_{t+1})$$

where $Z_t \leq A_t$ from price dispersion

- This paper: all firms are fix, $Z_t = 1$, wages are flexible

$$w_{t+1} = -U_{L,t+1}/U_{C,t+1}$$

- Here: also fix wages, with Cobb-Douglas

$$Y_{t+1} = A_{t+1} K_{t+1} \left(\frac{1-\alpha}{\alpha} \frac{\delta + r_t}{w} \right)^{1-\alpha}$$

Overaccumulation

- At time t economy gets overly optimistic about A_{t+1},think we'll stay at higher A, and monetary policy will be able to keep us at full employment
- Monetary policy chooses r_t to replicate flex, from

$$\delta + r_t = A_{t+1} F_K \left(K_{t+1}, L^*_{t+1} \right)$$

  we get an investment boom
- At $t+1$ we realize we made a mistake, we would like to go back to old K, but now

$$C_t + I_t = Y_t$$

  and adjusting to lower K means I depressed from

$$I_t = K_{t+1} - (1-\delta) K_t$$

- Can r stimulate enough C and I to maintain full employment?
- No

Two sectors

- Paper: overaccumulation happened in specific sector so

$$Y_t = C_t + I_t + I_t^{res}$$

- If I_t^{res} depressed due to overaccumulation, low interest rates still stimulate C_t and I_t
- So we can get a recession in I_t^{res}, Y_t, L_t, but a boom in I_t, C_t!
- Can we fix it?
- Of course other channels: household debt overhang, financial crisis
- But here pure keynesian question: can weak spending in one sector spill over into other sector purely because of low activity?

Dynamic channel

- We are at ZLB for several periods
- So choice of K_{t+1} can be read off

$$Y_{t+1} = A_{t+1} K_{t+1} \left(\frac{1-\alpha}{\alpha} \frac{\delta + r_t}{w} \right)^{1-\alpha}$$

  with $r_t = 0$
- Low activity in future periods implies low desired capital today, low investment
- Depressed activity at $t+1$ depresses activity at t through investment
- Effect can be strong

Recovery

- Once we are out of ZLB, we now have hangover in non-residential
- So now investment I_t will be depressed from high K_t and we need low r_t to stimulate demand
- Problem here is potential output is higher and we need more monetary stimulus than usual to reach it
- Is this realistic problem? Probably no, most accounts report depressed capital accumulation, depressed potential output, scars from recession

Sum up

- Nice paper!
- Focus on investment, two channels:
  - overaccumulation (high K_t)
  - dynamic effect of anticipated long recession (low K_{t+1})
- Important policy lesson: overaccumulation does not mean that liquidationist view is right