

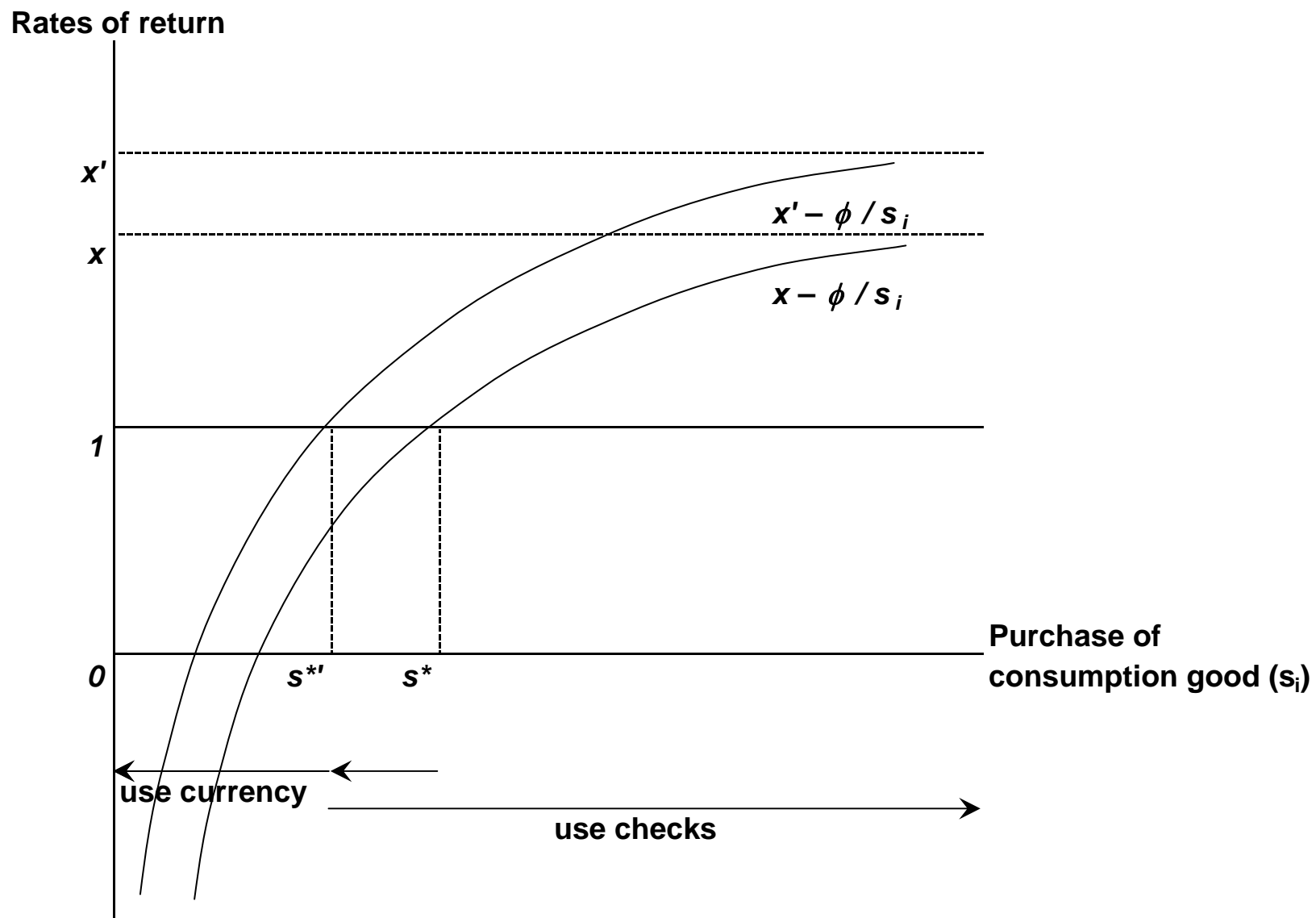
Lecture 24

Money and Banking, Econ 345

Oleksiy Kryvtsov

March 17, 2010

Unanticipated increase in return on capital



Effects of increase in capital productivity, x

- Deposits rise, $H_t \nearrow$, fiat money demand falls, $Q_t \searrow$
 - money multiplier rises, $1 + \frac{H_t}{Q_t} \nearrow$ (see figure)
- Price level rises (despite constant M_t), $p_t = \frac{M_t}{Q_t} \nearrow$
- Total money stock rises, $M1_t = M_t \left[1 + \frac{H_t}{Q_t} \right] \nearrow$
- Investment in capital rises
 - Direct investment rises (bc higher return), $K_t \nearrow$
 - Indirect investment rises (via bank loans), $H_t \nearrow$
- Output rises, $GDP_t = N_t y + x' H_t + x' K_t$
 - $x' \nearrow$, $H_t \nearrow$, $K_t \nearrow$

Is this model consistent with data?

YES:

- Total money stock, $M1_t$, positively correlated with real output
- Increase in money stock leads increase in real output
- Changes are linked to movements in money multiplier and deposit-to-currency ratio

Correlation does not mean causality!

- Even though money correlates (or even leads) real output, it does not *cause* output
- It only means that deposits are adjusted faster than production
- Increase in money stock leads increase in real output

Can monetary policy offset bad productivity shocks?

- Consider an unanticipated (shock) decline in x
- It leads to: increase in outside money Q_t , decrease in inside money H_t , and decline in money multiplier, $\left[1 + \frac{H_t}{Q_t}\right]$, decline in intermediated capital, decline in output in the following period
- Since money base M_t is constant, decrease in money multiplier leads to decline in total money supply: $M1_t = M_t \left[1 + \frac{H_t}{Q_t}\right]$
- Can monetary policy stabilize output by offsetting the decrease in total money supply?
 - increase M_t can prevent the decrease in $M1_t$
- No: although total money supply does not fall, the ratio of inside to outside money falls
 - since output is related to inside money through its investment in capital, output still falls despite increase in monetary base

Lesson for monetary policy

- Monetary aggregates (M1 in this model) are good predictors of the price level...
- ... but not good predictors of real output fluctuations
 - because they ignore composition into inside/outside money
- Inside money is linked to real output via their use by financial intermediaries for creating capital that is used in production
- Outside money has no direct links to production

Anticipated inflation and real output

- Increase in the rate of growth of outside money from μ to μ' lowers real return on fiat money and increases deposit-to-currency ratio, leading to increase in intermediated capital and future output
 - effect is small because total money stock is small (e.g., relative to capital stock)
- Inflation is still undesirable because of its negative effects:
 - increased seignorage
 - increased transaction costs (more use of deposits)

Anticipated increase in growth rate of money base

