

EXCHANGE RATE REGIMES - TUTORIAL 6

1. EXPLAIN THE ECONOMICS BEHIND UNCOVERED INTEREST PARITY (UIP). SUPPOSE UK INTEREST RATES INCREASED, BUT STERLING DEPRECIATED IN RESPONSE. COULD YOU EXPLAIN THIS USING UIP?

WE CONSIDER A SHORT RUN MODEL WHERE P^* AND P (FOREIGN AND DOMESTIC PRICES) ARE FIXED. THUS $E = E(P^*/P)$ IS DIRECTLY PROPORTIONAL TO THE NOMINAL EXCHANGE RATE E . UIP IMPLIES THAT THE ^{NOMINAL} RETURN ON FOREIGN ~~FINANCIAL ASSETS~~ MUST EQUAL THAT ON DOMESTIC ASSETS:

$$\left(\frac{E_{t+1}}{E_t} \right) (1 + i^*) = (1 + i)$$

$$\Rightarrow \ln(E_{t+1}) - \ln(E_t) + \ln(1 + i^*) = \ln(1 + i)$$

$$\Rightarrow \ln(E_{t+1}) - \ln(E_t) + i^* \approx i$$

BY THE FISHER EQUATION $i^* \approx r^* + \pi^*$ AND $i \approx r + \pi$. SO THIS BECOMES:

$$\Delta \ln(E_t) \approx (r - r^*) + (\pi - \pi^*) \quad \text{OR}$$

$$\frac{\Delta E_t}{E_t} \approx (r - r^*) + (\pi - \pi^*)$$

$$\text{SINCE } \Delta \ln(\theta_t) = \Delta \ln\left(E_t \left(\frac{P^*}{P_t}\right)\right) = \Delta \ln(E_t) + \Delta \ln(P^*) - \Delta \ln(P_t)$$

$$\Rightarrow \Delta \ln(\theta_t) \approx \Delta \ln(E_t) + \pi^* - \pi$$

$$\Rightarrow \frac{\Delta \theta_t}{\theta_t} \approx (r - r^*) + (\pi - \pi^*) + (\pi^* - \pi)$$

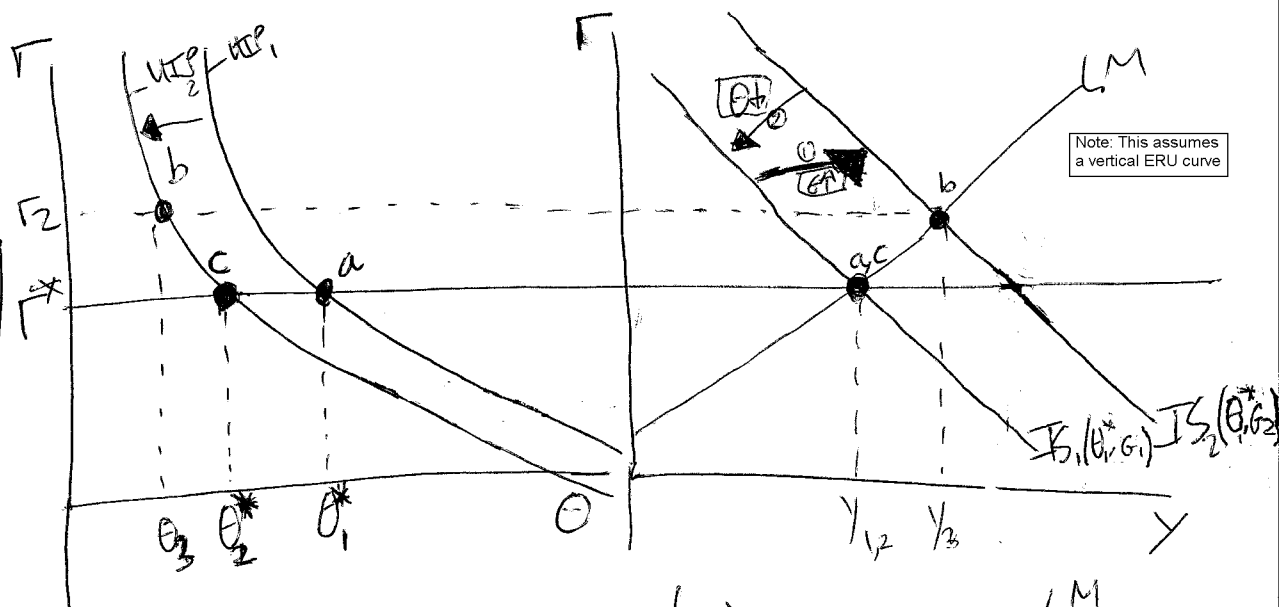
$$\Rightarrow \frac{\Delta \theta_t}{\theta_t} \approx r - r^*$$

SO THE PERCENTAGE / PROPORTIONAL CHANGE IN COMPETITIVENESS θ IS EQUAL TO THE DIFFERENTIAL BETWEEN DOMESTIC AND WORLD ^{REAL} INTEREST RATES.

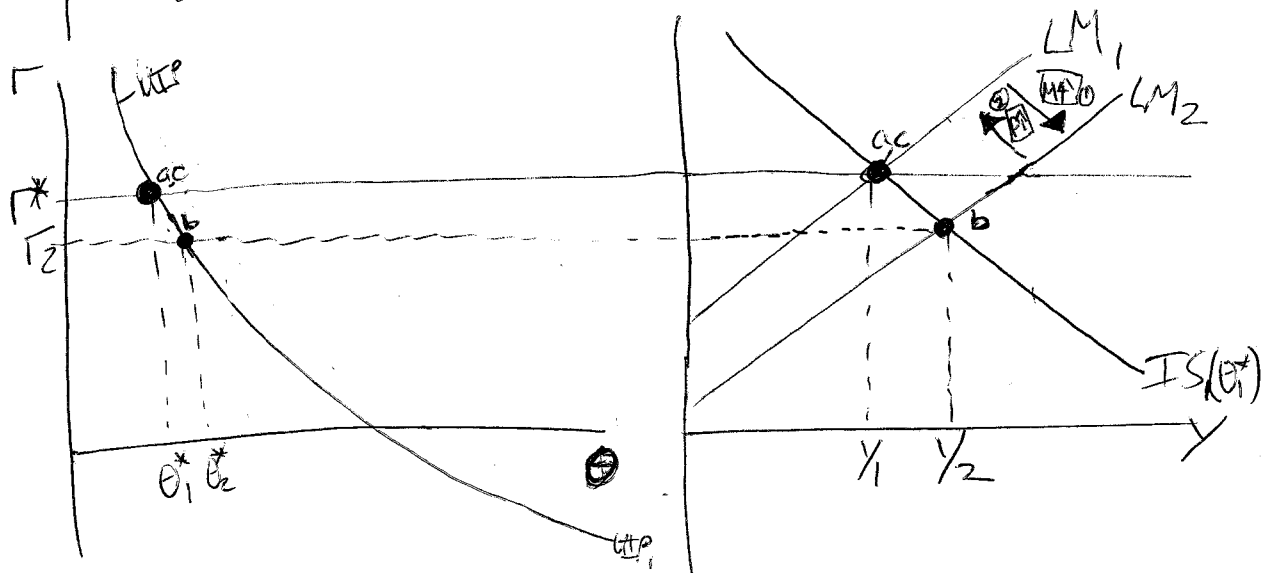
IF WE ASSUME THAT NEXT PERIOD THE REAL EXCHANGE RATE WILL RETURN TO ITS NEW EQUILIBRIUM VALUE THEN WG CAN ANALYSE THE IMPACT OF MONETARY AND FISCAL EXPANSIONS:

FISCAL:

THESE EXAMPLES ILLUSTRATE THE DORNBUSCH OVERSHOOTING MODEL, SINCE THE FS CURVE IS "STICKY" IN THE SHORT RUN

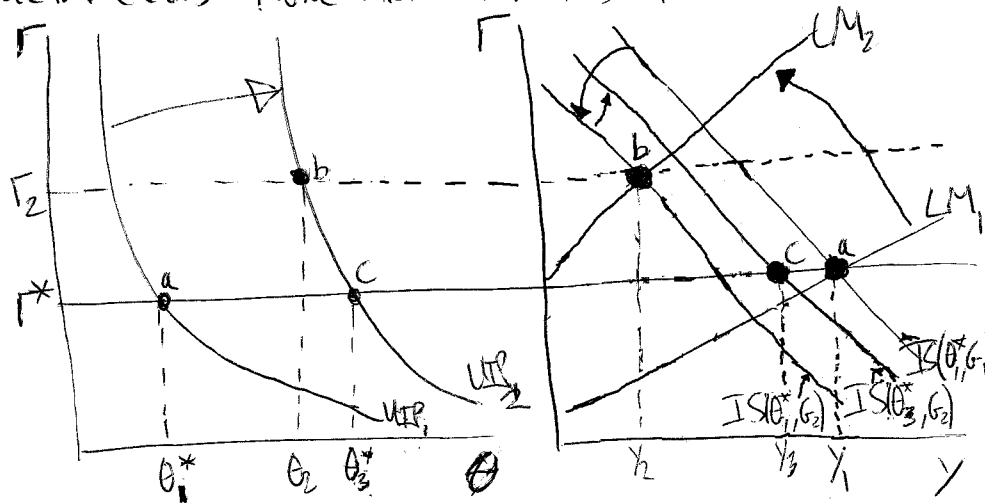
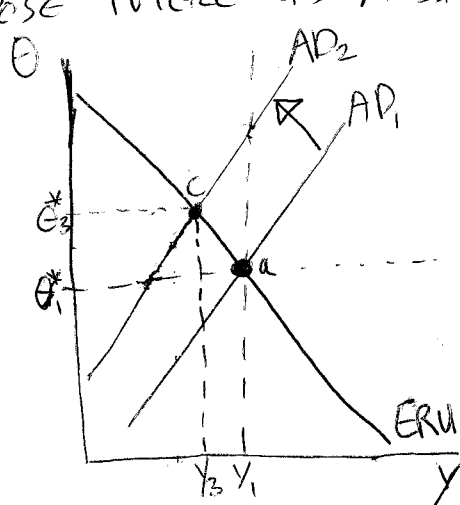


MONETARY:

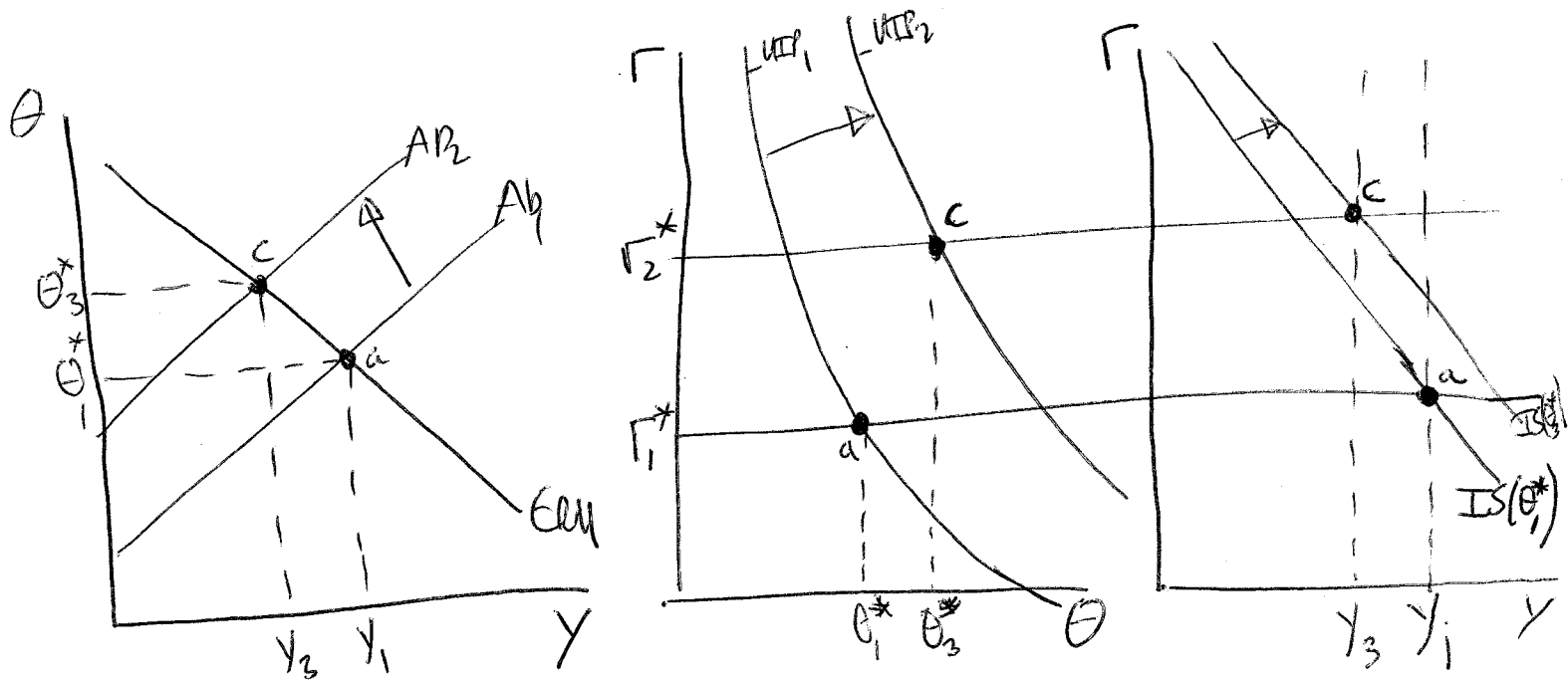


BOTH OF THESE CASES IMPLY THAT A RISE IN REAL INTEREST RATES WILL BE ACCOMPANIED BY AN APPRECIATION. TO GET A DEPRECIATION, THE LONG RUN EQUILIBRIUM EXCHANGE RATE MUST DEPRECIATE.

FOR EXAMPLE, SUPPOSE THERE IS A SIMULTANEOUS MONETARY AND FISCAL CONTRACTION:



ANOTHER POSSIBILITY IS THAT THE WORLD INTEREST RATE HAS RISEN:



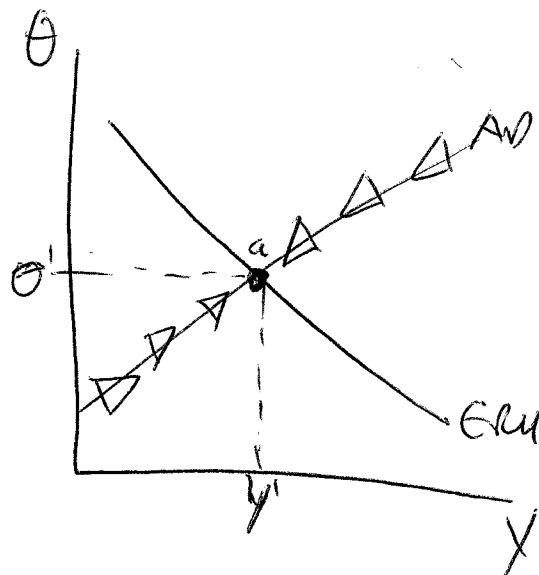
3. WHEN DOES UIP IMPLY THAT DOMESTIC INTEREST RATES MUST EQUAL OVERSEAS INTEREST RATES?

WE NEED TO DISTINGUISH CLEARLY BETWEEN NOMINAL AND REAL INTEREST RATES.

(A) UIP ONLY IMPLIES THAT NOMINAL INTEREST RATES ARE IDENTICAL IF THERE IS NO EXPECTED CHANGE IN THE NOMINAL EXCHANGE RATE. THIS WILL ONLY OCCUR UNDER A PERFECTLY CREDIBLE FIXED EXCHANGE RATE SYSTEM. ONLY IF $\pi_e^* = \pi_e$ (ANTICIPATED DOMESTIC = ANTICIPATED FOREIGN INFLATION) WILL THE SAME APPLY TO REAL INTEREST RATES.

(B) UIP IMPLIES THAT REAL INTEREST RATES ARE EQUAL IF PURCHASING POWER PARITY (PPP) HOLDS SO THAT ARBITRAGE OF INTERNATIONAL GOODS ENSURES THAT $\theta = 1$ ALWAYS (SINCE THEN $\frac{\Delta \theta}{\theta} = r - r^* = 0$ AND SO $r = r^*$) THIS IS THE CASE UNDER EITHER TYPE OF REGIME.

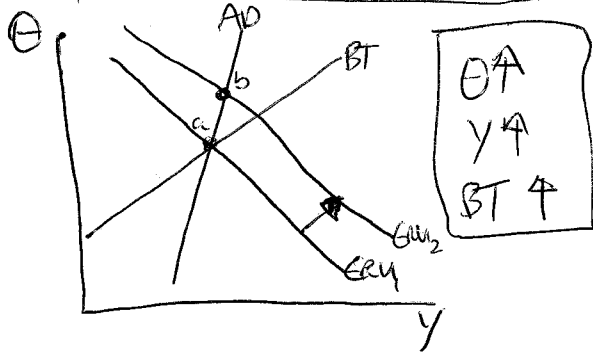
(C) IN ^{EITHER} A FLEXIBLE ^{OR FIXED} EXCHANGE RATE REGIME, REAL INTEREST RATES ARE ONLY EQUAL UNDER UIP IF $\frac{\Delta \theta}{\theta_t} = 0$ WHICH MEANS THAT THE REAL EXCHANGE RATE IS IN MEDIUM RUN EQUILIBRIUM (IE WHERE AD CROSSES GRU IN THE SWAN DIAGRAM):



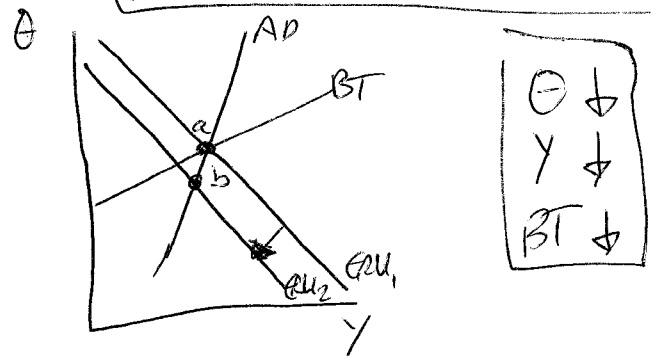
ESSAY QUESTION - HOW COULD WE USE THE CURRENT ACCOUNT AND THE EXCHANGE RATE TO TELL WHETHER AN OPEN ECONOMY HAD BEEN HIT BY A SUPPLY SHOCK OR A DEMAND SHOCK?

WE BEGIN WITH THE MEDIUM RUN IMPACTS IN THE SALTER-SWAN DIAGRAM:

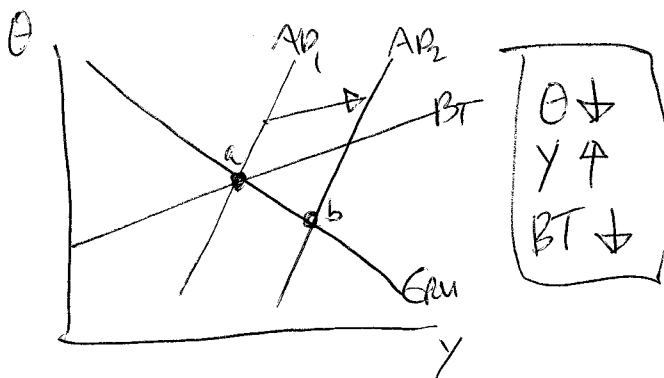
POSITIVE SUPPLY SHOCK



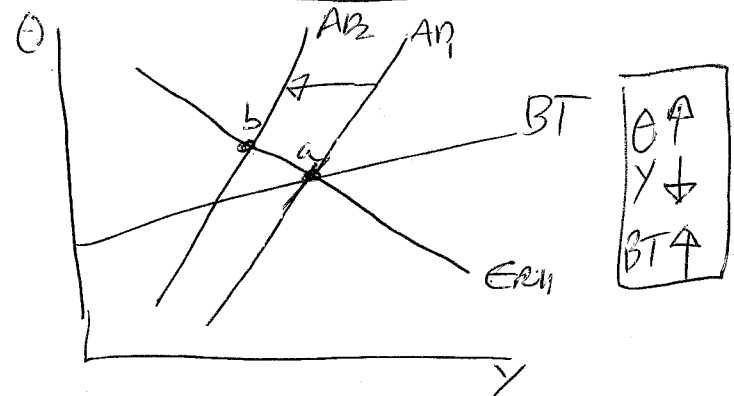
NEGATIVE SUPPLY SHOCK



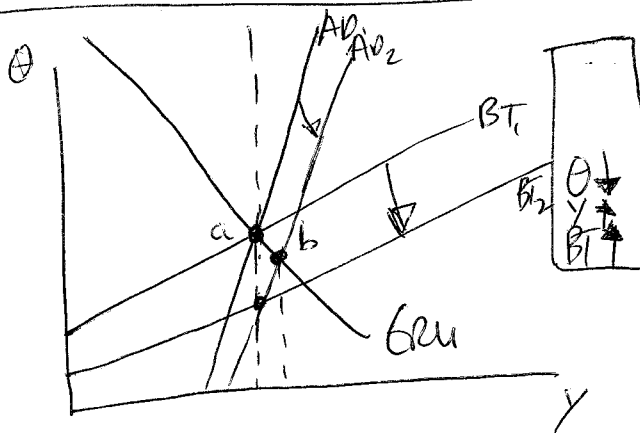
POSITIVE DEMAND SHOCK



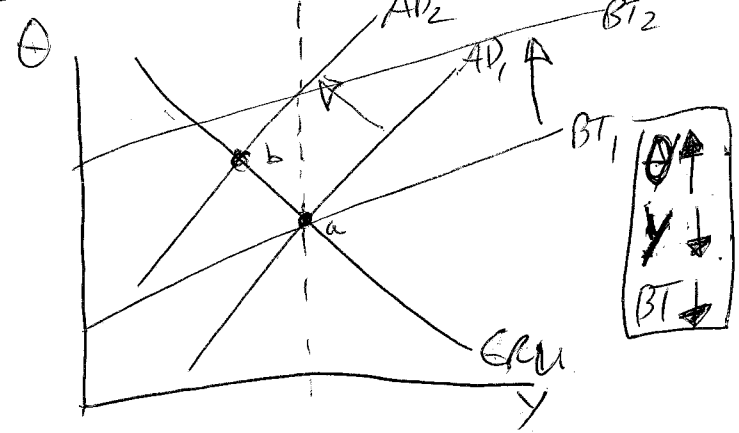
NEGATIVE DEMAND SHOCK



POSITIVE TRADE SHOCK



NEGATIVE TRADE SHOCK

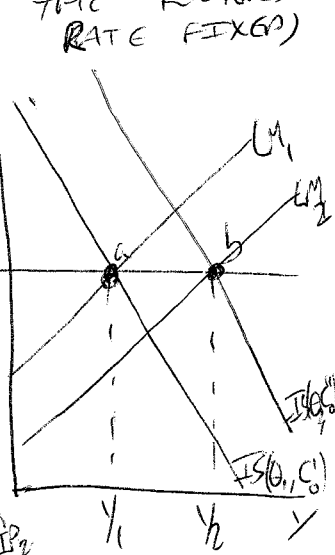
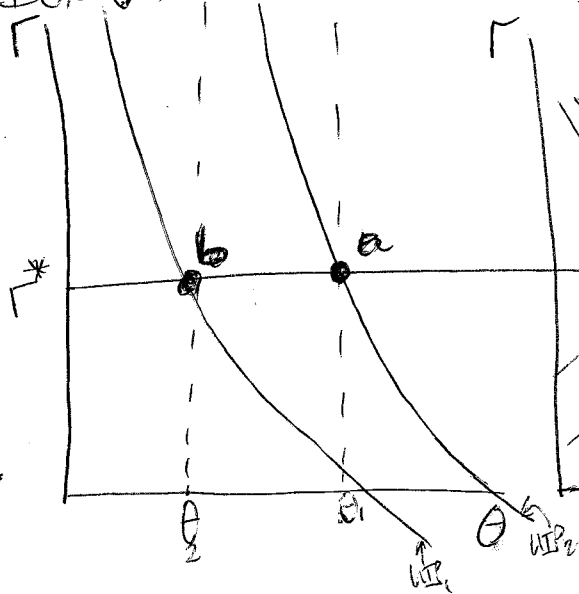
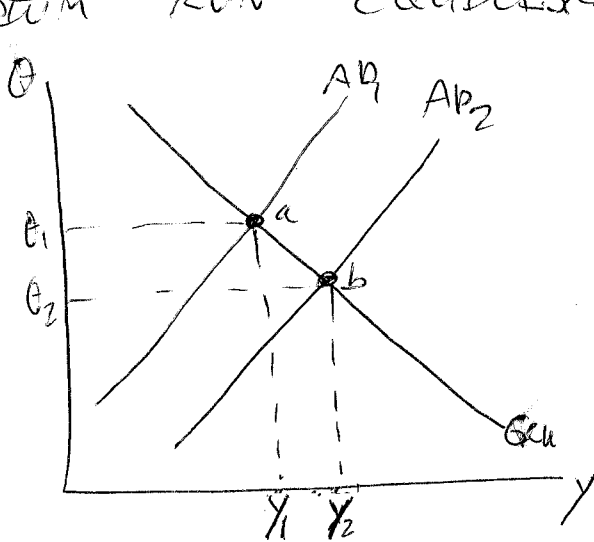


EACH OF THESE SHOCKS HAS A UNIQUE "SIGNATURE" SO IF THEY OCCUR IN A PURE FASHION IT IS IN PRINCIPLE POSSIBLE TO IDENTIFY THEM.

HOWEVER, THEY ARE LIKELY TO OCCUR SIMULTANEOUSLY AND THE SHORT RUN EFFECTS ARE MORE COMPLEX. IN A FIXED EXCHANGE RATE REGIME, θ DOES NOT CHANGE IN THE SHORT RUN, SO IT IS NOT POSSIBLE TO IMMEDIATELY DISENTANGLE ALL 6 TYPES OF SHOCK. WE MUST WAIT FOR INFLATIONARY PRESSURE TO CAUSE ADJUSTMENT TO THE MEDIUM RUN EQUILIBRIUM.

IN A FLOATING EXCHANGE RATE REGIME, OUTPUT DOES NOT IMMEDIATELY CHANGE - IN THE MUNDALL-FLEMING MODEL, SO WE HAVE A SIMILAR PROBLEM.

IF WE INTRODUCE UIP THIS HELPS SOMEWHAT IF THE IS CURVE IS COMPLETELY FLEXIBLE SINCE WE THEN JUMP IMMEDIATELY TO THE NEW MEDIUM RUN EQUILIBRIUM (ASSUMING THE CENTRAL BANK HAS THE INTEREST RATE FIXED)



OR, FOR A MOVEMENT

