

The current account, exchange rates etc

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Part I

The price specie-flow model (continued)

The model

IS-curve:

$$Y = C \left(Y - i_* \frac{EF_*}{P} - G, -\frac{EF_*}{P} - W_g, i, i_* \right) + G + X \left(\frac{EP_*}{P}, Y, Y_* \right) \quad (1)$$

Phillips-curve:

$$\dot{P} = P\gamma(Y - \bar{Y}) \quad (2)$$

Accumulation of foreign debt:

$$\dot{F}_* = i_* F_* - \frac{P}{E} X \left(\frac{EP_*}{P}, Y, Y_* \right) \quad (3)$$

Endogenous variables: Y , P and F_*

Initial cond: $P(0) = P_0$, $F_*(0) = F_{*0}$, $W_g(0) = (-M_0 - B_0 + E(0)F_{g0})/P_0$

The temporary equilibrium

$$Y = C\left(Y - i_* \frac{EF_*}{P} - G, -\frac{EF_*}{P} - W_g, i, i_*\right) + G + X\left(\frac{EP_*}{P}, Y, Y_*\right)$$

IS-equation determines Y given P and F_* .

Solution:

$$Y = Y(P, F_*, \mathbf{x}), \quad \mathbf{x} = (i_*, P_*, Y_*, G, i, E, W_g) \quad (4)$$

Increased foreign debt, F_* , reduces consumption demand and output

$$\frac{\partial Y}{\partial F_*} < 0, \quad \frac{\partial Y}{\partial P} < 0$$

$\partial Y / \partial P < 0$ assumes real exchange rate effect dominates over an eventual positive wealth effect.

The dynamic equations

$$\dot{P} = \phi_1(P, F_*, \mathbf{x}) = P\gamma[Y(P, F_*, \mathbf{x}) - \bar{Y}] \quad (5)$$

$$\dot{F}_* = \phi_2(P, F_*, \mathbf{x}) = i_*F_* - PX(EP_*/P, Y(P, F_*, \mathbf{x}), Y_*)/E \quad (6)$$

Our assumptions

$\phi_{11} < 0$ follows from $\partial Y / \partial P < 0$

$\phi_{12} < 0$ follows from $\partial Y / \partial F_* < 0$

$\phi_{21} > 0$ assuming that real exchange rate effect dominates if wealth effect is negative

$\phi_{22} < 0$ assuming that effect on trade surplus dominates over effect on interest payments

The stationary equilibrium

$$\dot{P} = \phi_1(P, F_*, \mathbf{x}) = 0 \Leftrightarrow Y = Y(P, F_*, \mathbf{x}) = \bar{Y} \quad (7)$$

$$\dot{F}_* = \phi_2(P, F_*, \mathbf{x}) = 0 \Leftrightarrow PX(EP_*/P, Y, Y_*) = i_*EF_* \quad (8)$$

(7) - internal balance - and (8) - external balance - determine F_* and P

Solution is recursive

Y determined by supply (capacity)

W'_* determined by savings behavior

$$C(\bar{Y} - i_*W'_* - G, -W'_* - W_g, i, i_*) + G = \bar{Y} - i_*W'_*$$

R determined by demand for exports and imports

$$i_*W'_* = X(R, \bar{Y}, Y_*)$$

P determined by exchange rate, $P = EP_*/R$

Stability conditions

Jacobian matrix

$$A = \begin{bmatrix} \phi_{11} & \phi_{12} \\ \phi_{21} & \phi_{22} \end{bmatrix}$$

Necessary and sufficient conditions for stability:

$$\text{tr}(A) = \phi_{11} + \phi_{22} < 0$$

and

$$|A| = \phi_{11}\phi_{22} - \phi_{12}\phi_{21} > 0$$

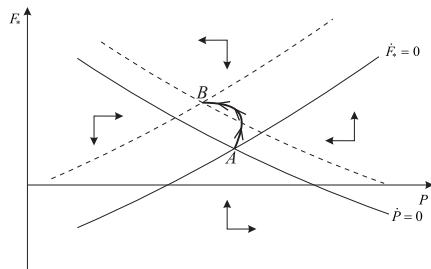
$$|A| > 0 \iff i_*(1 - C_Y) - C_W < 0$$

Or:

$|A| > 0 \iff$ Foreign debt up \rightarrow savings up (Y constant)

$\phi_{22} < 0$ - Foreign debt up \rightarrow savings up even in the short run when Y is down.

The effect of easier access to credit



Positive shift in domestic demand

Internal balance requires higher prices

External balance requires lower prices

First boom, then recession

Prices increase first, then fall below initial level

Approach may be cyclic

On the price effect

How do we know that the price level has to fall?

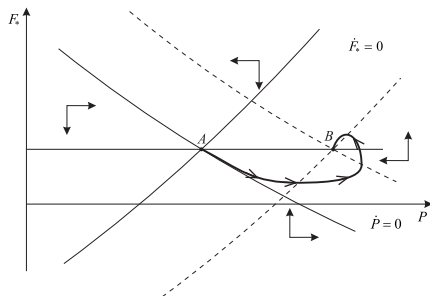
In stationary state:

$$i_* F_* / P_* = (1/R) X(R, \bar{Y}, Y_*) \quad (9)$$

- ▶ Foreign debt is higher
- ▶ Interest payments are higher
- ▶ Trade surplus has to be higher
- ▶ Real exchange rate must depreciate (Marshall-Lerner)
- ▶ Nominal prices must fall, since exchange rate is fixed

With flexible exchange rate, exchange rate movements may produce the real appreciation.

A devaluation (Assuming $F_{g0} = 0$)



Long run: R and F_* not affected

Current account improves, curve for external balance shifts to the right

Output increases, curve for internal balance shifts to the right

Shifts equal in size (only E/P matters)

First boom, then recession

Devaluation cycles

Norway's devaluation decade
1977-86

Devaluation as response to negative shift in savings propensity

- ▶ Current account may improve in the short run
- ▶ Later deficit will be larger, total change in F_* the same
- ▶ Transition take place with more inflation and less unemployment
- ▶ May leave legacy of increased inflation expectations
- ▶ Policies designed to break inflationary expectations may create unemployment later

Floating exchange rate, flexible inflation target

Assumptions

i is used to keep P constant by keeping $Y = \bar{Y}$

Perfect capital mobility

The effect of easier access to credit

- ▶ Long run equilibrium: Higher foreign debt, depreciated real *and nominal* exchange rate
- ▶ Short run: Higher interest rate, appreciated exchange rate, current account deficit
- ▶ The path between: Gradual depreciation, gradual increase in foreign debt, equilibrium output

Ideally monetary policy can be used to stabilize prices and avoid cyclical swings in output when there are *demand shocks*.

Part II

Fixed versus floating exchange rates

Traditional comparison: Fixed exchange rate versus fixed money supply

Assume (close to) perfect capital mobility in both cases (no interventions, no exchange controls)

Model reference: Mundell-Fleming-Tobin, supplemented by Dornbusch

- ◇ Floating dampens the output effects of demand shocks
Positive demand shock → *interest rate up and appreciation*
- ◇ Floating makes money demand shocks have output effects
Positive money demand shock → *higher interest rates and appreciation*
- ◇ Floating amplify the output effect of cost-push shocks
Positive wage shock → *prices up* → *interest rate up* → *appreciation*

Fixed exchange rate versus fixed money supply, continued

- ◇ Floating may speed up output response to productivity and resource shocks

Increased labor supply \rightarrow increased \bar{Y} \rightarrow Immediate depreciation \rightarrow output up, and this is what we want (but response to productivity shocks may go to far)

- ◇ Shocks from exchange rate expectations / risk premium - opposing output effect
 - ▶ *fixed - flight from currency \rightarrow higher interest rate \rightarrow output down*
 - ▶ *floating - flight from currency \rightarrow depreciation \rightarrow output up*

The exchange rate as shock absorber

And inflation targeting?

Difference from money supply targeting:

- ▶ may avoid influence from money demand shocks
- ▶ possible to fine-tune interest rate response to each kind of shock (but also to err)

Comparison depends on exactly how inflation targeting is practiced

Do the level of noise depend on the regime?

Potential causes of different volatility:

- ▷ Different credibility of the regimes
- ▷ Different disciplining effect on other parties (government, unions, employer's organizations)
- ▷ Inflation targeting more demanding on policy maker's forecasting abilities
- ▷ Floating rates more demanding on investor's forecasting abilities

Fixing to whom?

- ▷ Price stability
- ▷ Representativeness
- ▷ Covariation over the cycle
- ▷ Common shocks