

Lecture 7 Fixed Exchange Rates and Foreign Exchange Intervention

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A Tale of Two Regimes

Real exchange rate approach

$$E = q \times \frac{P}{P^*} = q \times \frac{M^s}{M^{*s}} \times \frac{L(R^*, Y^*)}{L(R, Y)}$$

- ▶ Floating exchange rate regime
 - ▶ M^s (M^{*s}) determined by central bank
 - ▶ E determined by market
- ▶ Fixed exchange rate regime
 - ▶ E determined by central bank
 - ▶ M^s (M^{*s}) determined by market
 - ▶ gold standard (1870–WW1), reserve currency (WW2–1973)
- ▶ Many countries nowadays operate under hybrid regime of ‘managed’ floating exchange rates

The Road Ahead...

- ▶ Central bank balance sheet
- ▶ Foreign exchange intervention
- ▶ How central banks fix exchange rate
- ▶ Stabilization policies under fixed exchange rate
- ▶ Asset substitutability and sterilized intervention

Central Bank Balance Sheet

Assets		Liabilities	
Foreign assets	\$1,000	Reserves	\$500
Domestic assets	\$1,500	Currency	\$2,000

- ▶ Examples of assets
 - ▶ international reserves: foreign gov't bonds, gold
 - ▶ domestic gov't bonds
 - ▶ loans to domestic banks (discount loans in U.S.)
- ▶ Examples of liabilities
 - ▶ reserves: deposits by private banks
 - ▶ currency in circulation
- ▶ Monetary base/high-powered money: reserves + currency

Foreign exchange intervention

Assets		Liabilities	
Foreign assets	\$900	Reserves	\$500
Domestic assets	\$1,500	Currency	\$1,900

- ▶ Example of nonsterilized intervention
 - ▶ sale of \$100 foreign bonds
 - ▶ domestic money supply ↓ by more than \$100

Assets		Liabilities	
Foreign assets	\$900	Reserves	\$500
Domestic assets	\$1,600	Currency	\$2,000

- ▶ Example of sterilized intervention
 - ▶ sale of \$100 foreign bonds, purchase of \$100 domestic bonds
 - ▶ domestic money supply *unchanged*

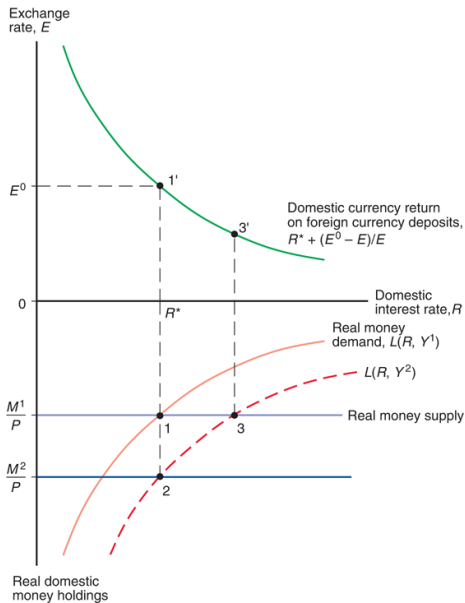
Pegging Exchange Rate

Nominal interest parity revisited

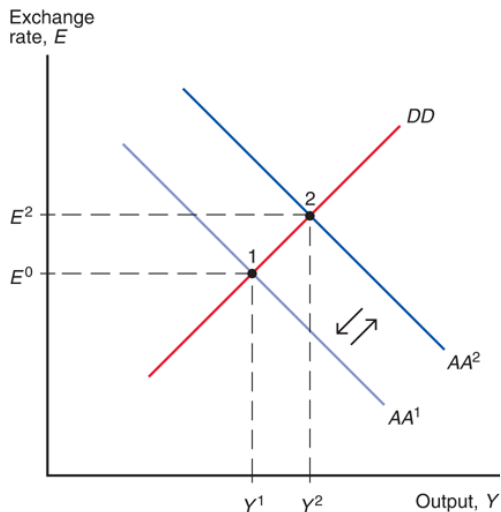
$$R = R^* + \frac{E^0 - E}{E} \quad (\text{set } E^e = E^0)$$

- ▶ Central bank intervenes when equilibrium exchange rate falls below target, $E < E^0$ (PICTURE below!)
 - ▶ interest parity implies $R > R^*$
 - ▶ E^0 creates excess euro S, excess dollar D
 - ▶ central bank purchases euro bonds
 - ▶ euro D curve \rightarrow , dollar S curve \rightarrow
 - ▶ $E \uparrow$ ($1/E \downarrow$) to E^0 ($1/E^0$)
- ▶ To fix $E = E^0$, central bank influences currency supply and demand by trading foreign assets until $R = R^*$

Graphical Analysis

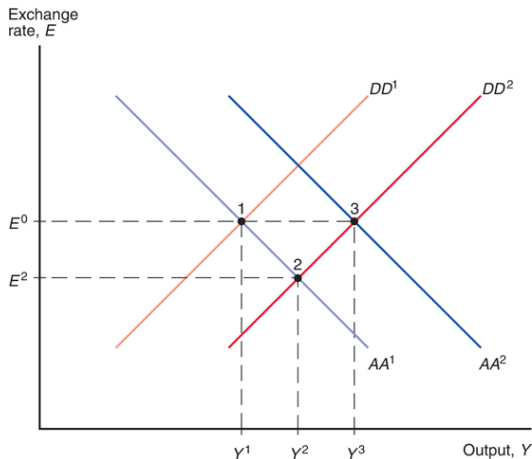


Monetary Policy



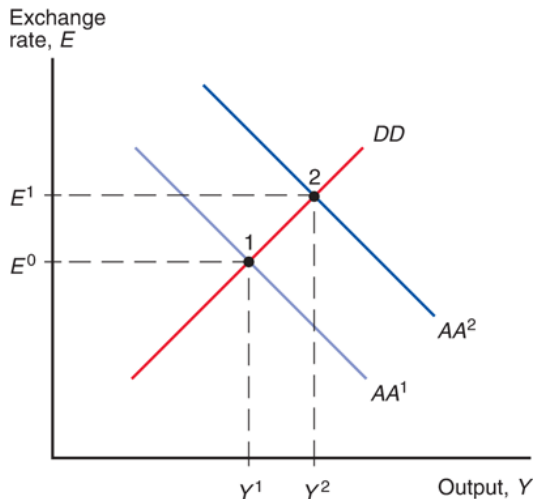
- ▶ Purchase of domestic assets + sale of foreign assets
- ▶ MP is ineffective under fixed exchange rate

Fiscal Policy



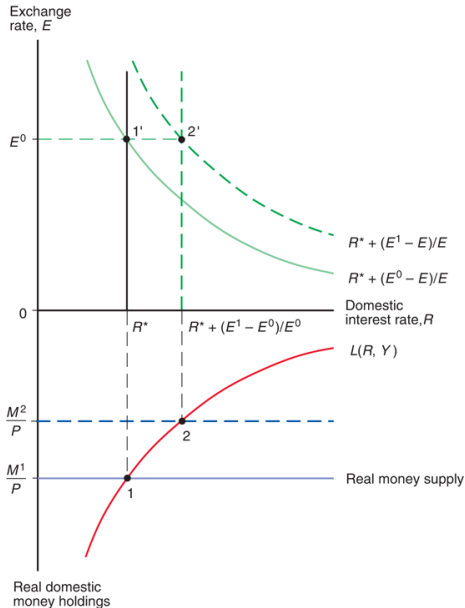
- ▶ Tax cut + purchase of foreign assets
- ▶ FP is more potent under fixed than floating exchange rate

Effect of Currency Devaluation



- ▶ Devaluation/revaluation: rise/fall in exchange rate target
- ▶ $E \uparrow \Rightarrow Y \uparrow \Rightarrow \frac{M^s \uparrow}{P} = L(R, Y)$ (buy foreign assets)

Balance of Payments Crisis



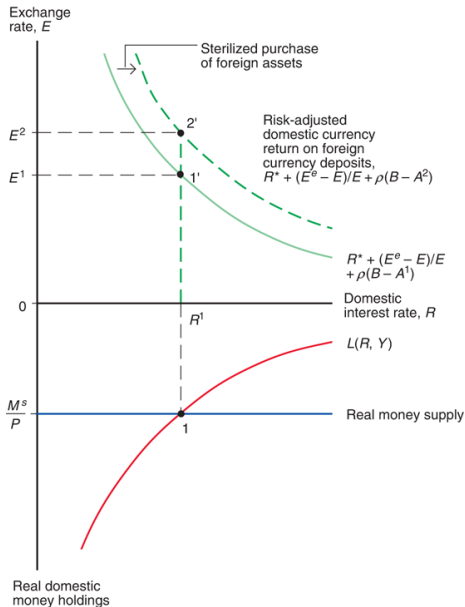
Asset Substitutability

Foreign exchange market equilibrium

$$R = R^* + \frac{E^e - E}{E} + \rho(B - A)$$

- ▶ Substitutability b/w home and foreign currencies
 - ▶ $B - A$ = domestic bonds held by *market*
(domestic bonds less those held by central bank)
 - ▶ ρ = risk premium on risky domestic assets
 $B - A \uparrow \Rightarrow \rho \uparrow$ (default/exchange rate risk)
 - ▶ $\rho = 0$: perfect substitutes, only return matters
 \Rightarrow sterilized intervention becomes ineffective
 - ▶ $\rho > 0$: imperfect substitutes \Rightarrow interest differential

Effect of Sterilized Intervention



Readings & Exercises

- ▶ Readings

- ▶ KOM: chapter 18

- ▶ Exercises

- ▶ KOM: problem 1, 2, 3, 4
 - ▶ In-class quiz: graphically illustrate how must central bank intervene when equilibrium exchange rate rises above target? EXPLAIN your results.