Lecture 7 Fixed Exchange Rates and Foreign Exchange Intervention

Fei Tan

Department of Economics
Chaifetz School of Business
Saint Louis University

International Macroeconomics

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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)
- Hybrid regime of 'managed' floating exchange rates

The Road Ahead...

1. Central Bank Intervention and Money Supply
2. How Central Banks Fix Exchange Rate
3. Stabilization Policies under Fixed Exchange Rate
4. Sterilized Intervention under Managed Floating Regime

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 $\downarrow$ 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*

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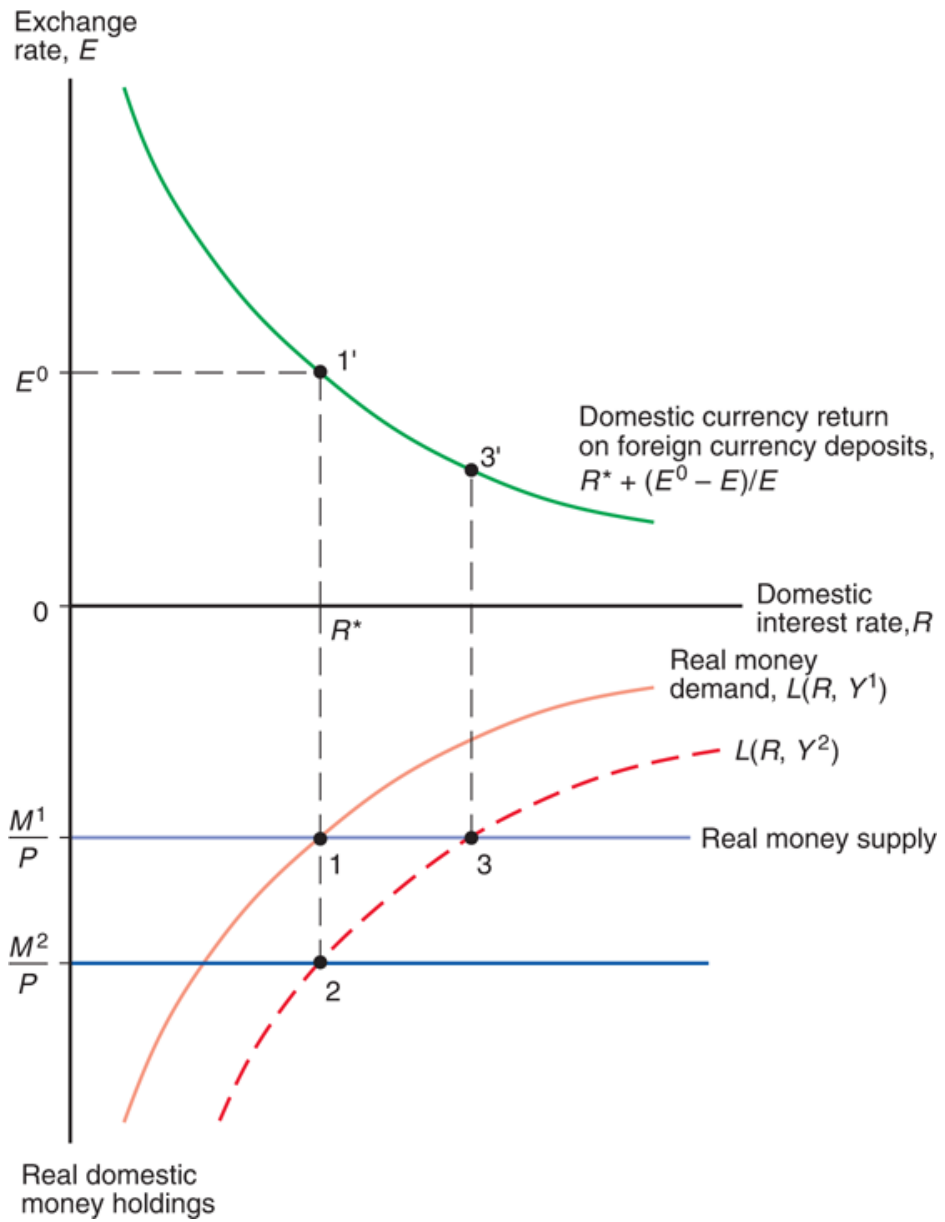
Pegging Exchange Rate

Nominal interest parity revisited

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

- Central bank intervens 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



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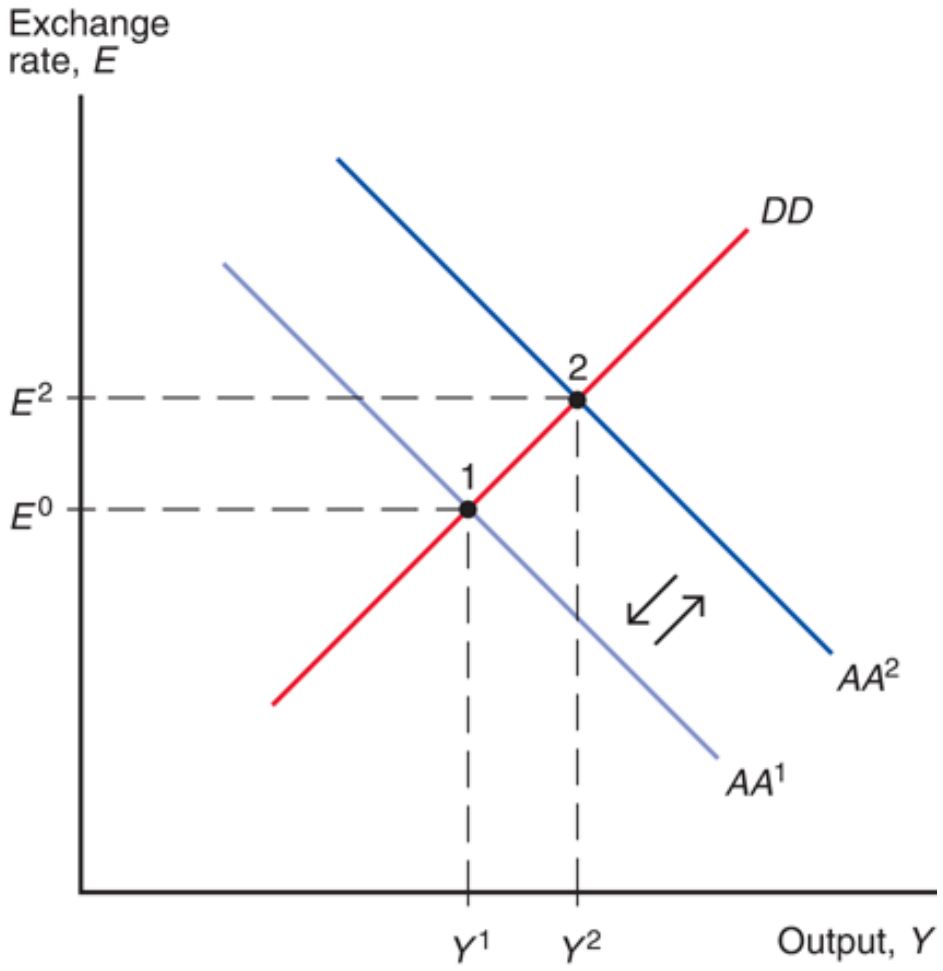
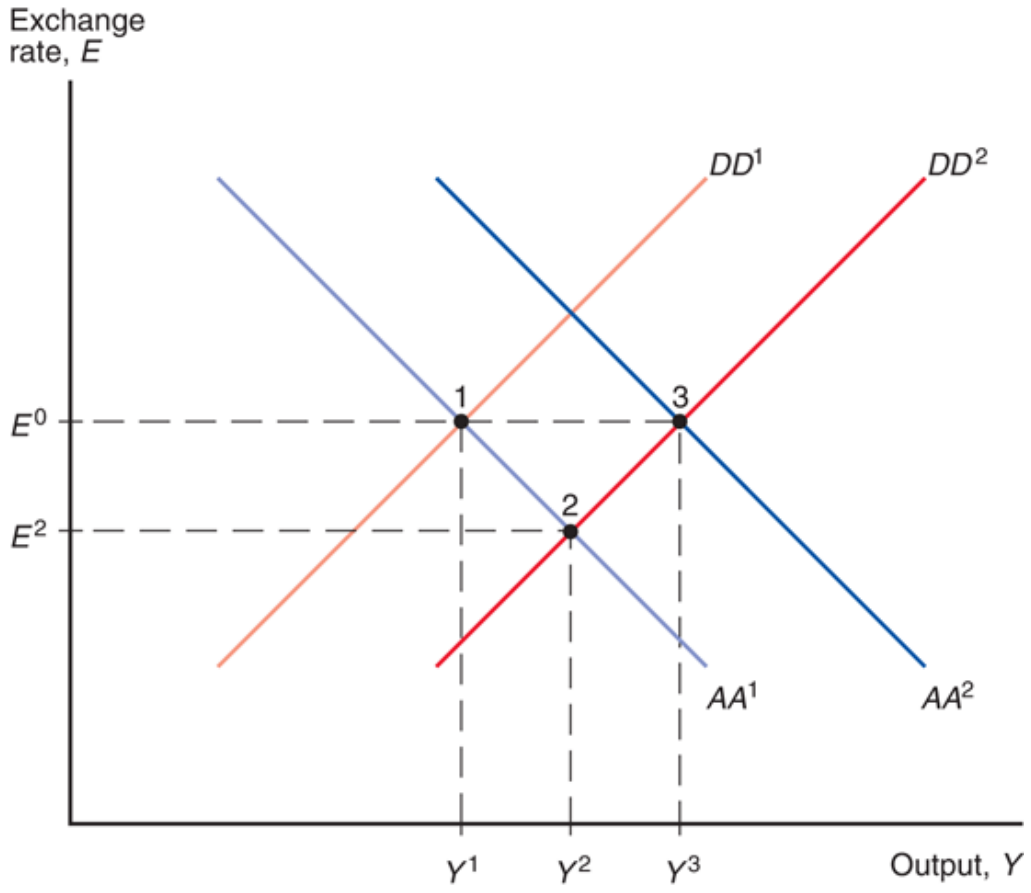
Monetary Policy



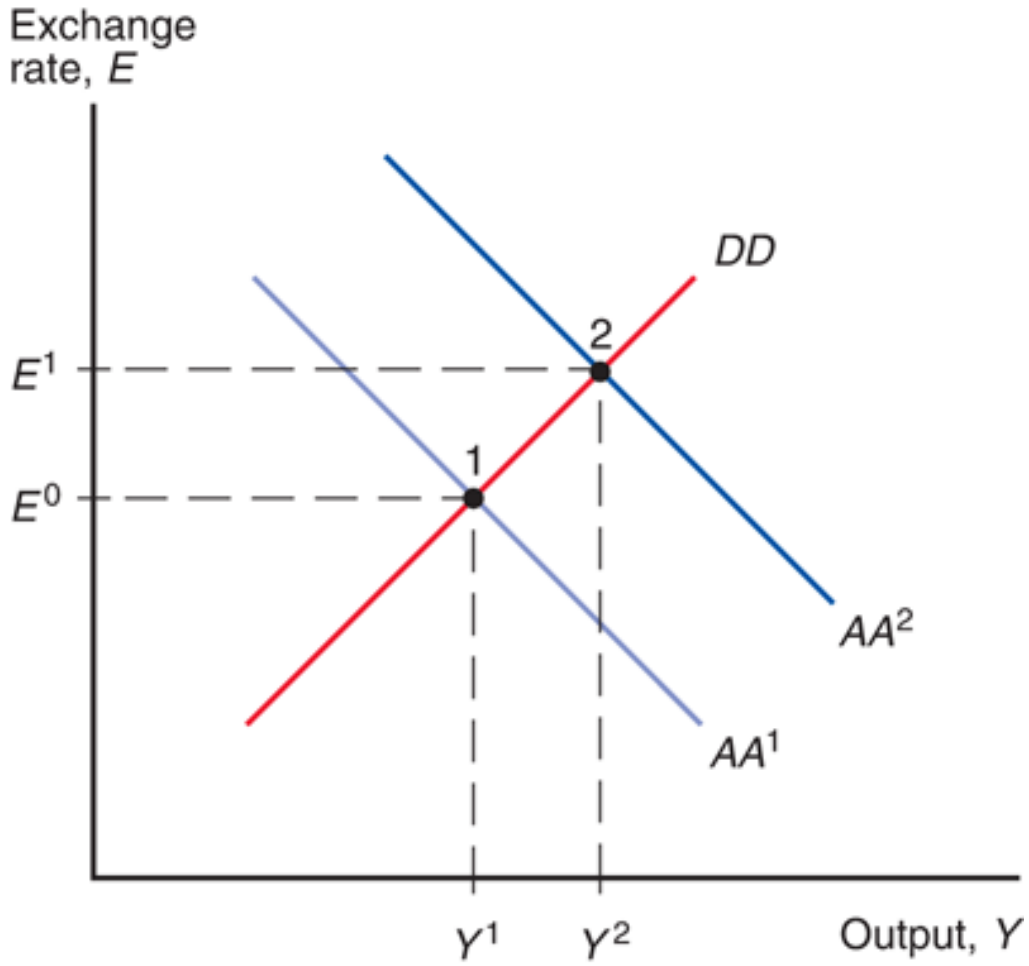
- Purchase of domestic assets + sale of foreign assets
- MP is ineffective under fixed exchange rate

Fiscal Policy



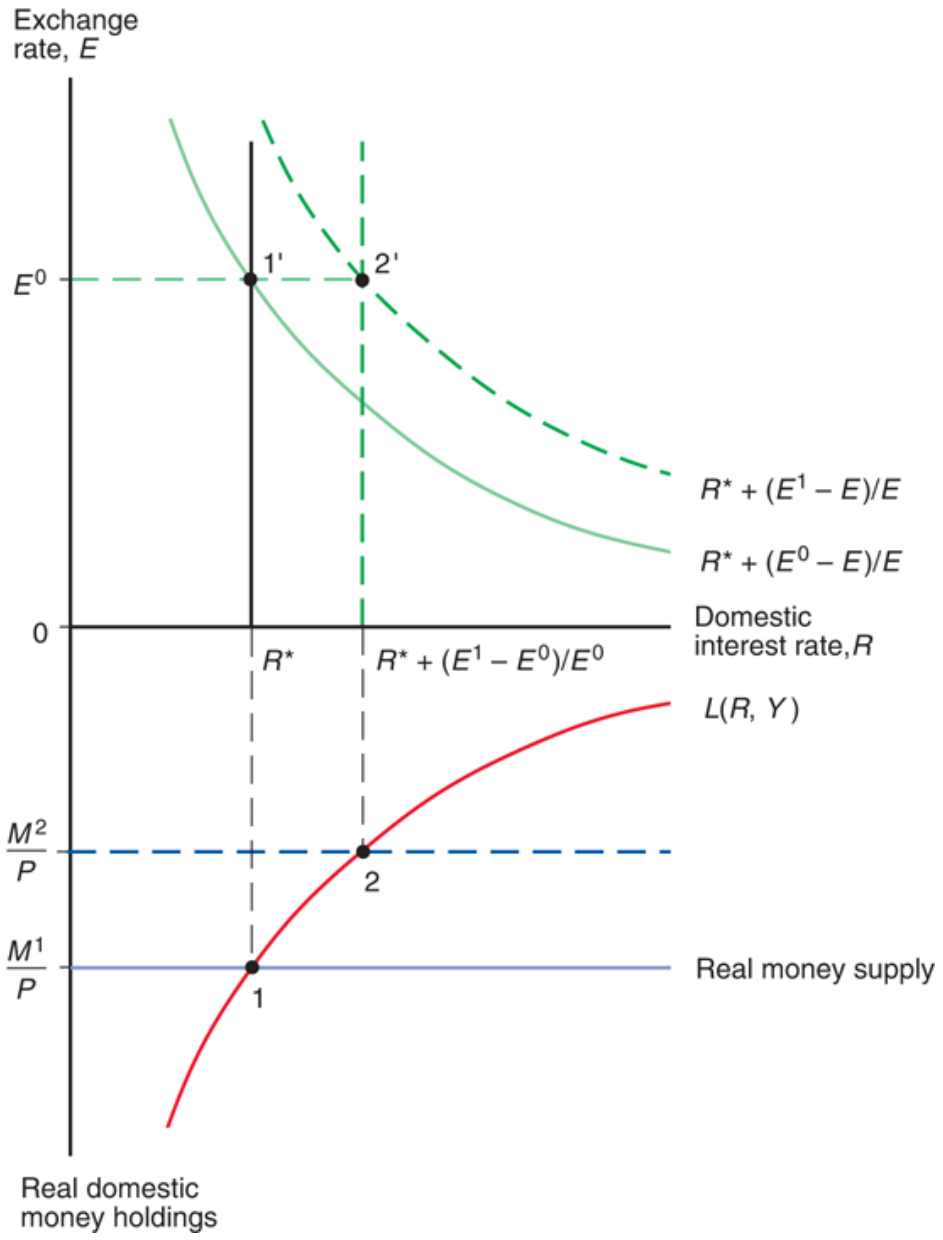
- Tax cut + purchase of foreign assets
- FP is more potent under fixed than floating exchange rate

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



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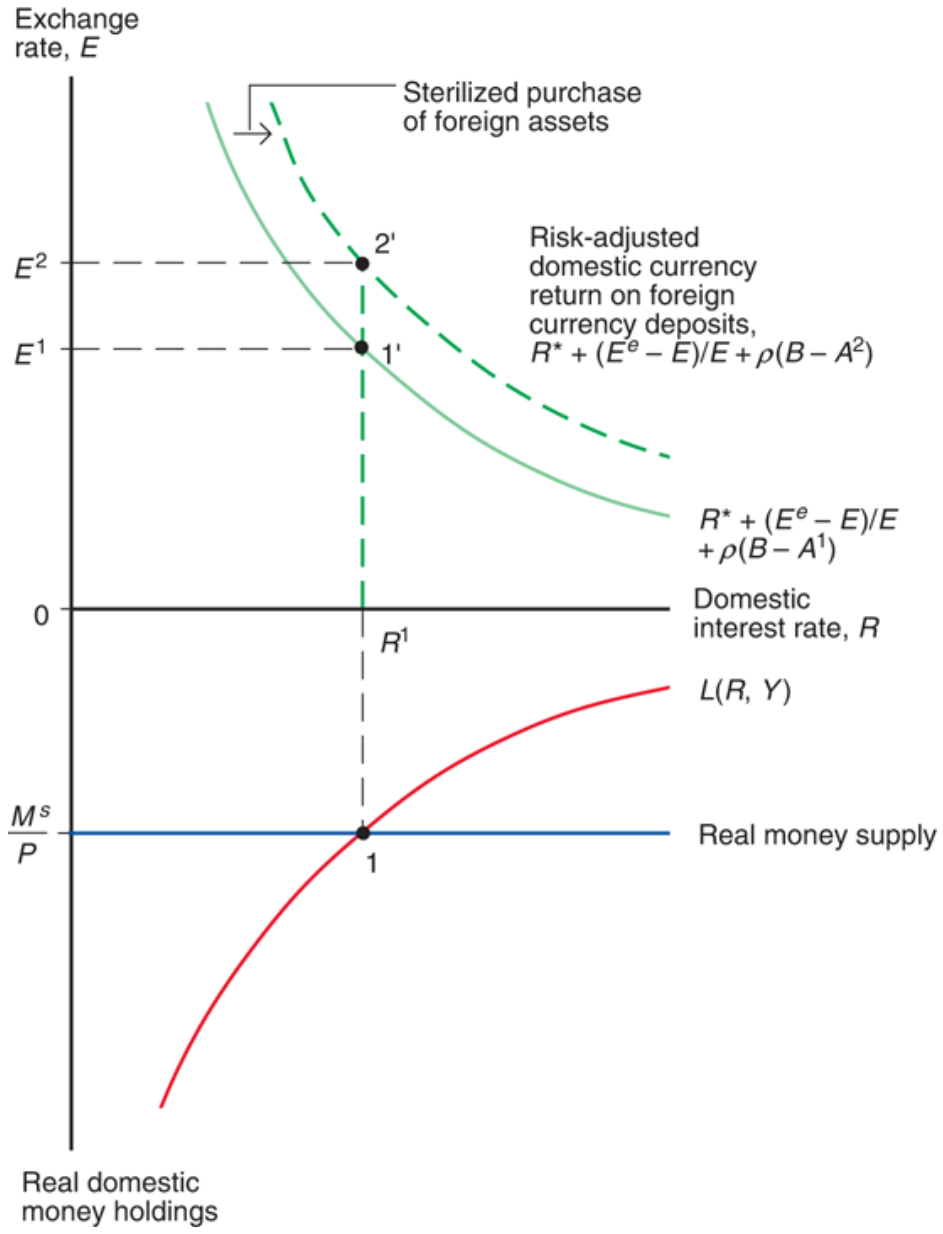
Asset Substitutability

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)
  - $\rho =$ 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
  - Graphically illustrate how must central bank intervene when equilibrium exchange rate rises above target? EXPLAIN your results.