

Issues in International Finance

Fixed exchange rates and the trilemma

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Roadmap

- ▶ Recap floating exchange rate regime model
- ▶ Fixed exchange rate regime model
- ▶ Trilemma: an implication of fixed exchange rates
- ▶ Examples

Floating exchange rate regimes

- ▶ Our focus so far has been on **floating** exchange rate regimes with **capital mobility** (UIP holds)
- ▶ In the short run, the central bank chooses M (and thus i) and $E_{H/F}$ was determined by UIP

$$M_H \rightarrow M_H/\bar{P}_H \rightarrow i_H$$

$$i_H = i_F + \frac{E_{H/F}^e}{E_{H/F}} - 1$$

- ▶ In the long run, the central bank chooses M which determines P and E and i is determined by the Fisher effect

$$P_H = M_H/[L(i_H)Y_H]$$

$$E_{H/F} = P_H/P_F$$

$$i_H = \pi_H^e + r^*$$

Fixed exchange rate regimes

- ▶ In a **fixed** exchange rate regime, things change
- ▶ The central bank chooses an exchange rate level $\bar{E}_{H/F}$
 - ▶ Why? It is a nominal anchor.
- ▶ As in our discussion of floating exchange rate regimes, assume that capital moves freely across borders: **international capital mobility**
- ▶ How does our analysis change?

Fixed exchange rate regimes: Short run

- ▶ The fixed exchange rate + capital mobility determine the interest rate

$$i_H = i_F + \underbrace{\frac{\bar{E}_{H/F}^e}{\bar{E}_{H/F}} - 1}_{=0}$$

- ▶ So $i_H = i_F$. Home does not control i_F , so it does not control i_H .
- ▶ What is the home money supply? Again, it is determined by i_F

$$M_H = \bar{P}_H L(i_F) Y_H$$

- ▶ Once the exchange rate is fixed, the central bank must keep M_H at the appropriate level to keep the $i_H = i_F$.

Fixed exchange rate regimes: Long run

- ▶ The central bank chooses an exchange rate level $\bar{E}_{H/F}$
- ▶ Foreign price level + fixed exchange rate determine P_H

$$P_H = \bar{E}_{H/F}/P_F$$

- ▶ UIP implies that $i_H = i_F$ as before...
- ▶ ...so the money supply is

$$M_H = P_H L(i_F) Y_H$$

$$M_H = \frac{\bar{E}_{H/F}}{P_F} L(i_F) Y_H$$

- ▶ Once the exchange rate is fixed, the central bank must keep M_H at the appropriate level to keep the $i_H = i_F$.

Recap

- ▶ With flexible exchange rates
 - ▶ Central bank chooses M_H
 - ▶ In the long run determines P_H and $E_{H/F}$
 - ▶ In the short run determines i_H and $E_{H/F}$
- ▶ With fixed exchange rate
 - ▶ Central bank chooses $\bar{E}_{H/F}$
 - ▶ In the long run P_H and M_H must ensure $i_H = i_F$
 - ▶ In the short run M_H must ensure $i_H = i_F$
- ▶ Fixed exchange rate + capital mobility \rightarrow loss of monetary policy

The open economy trilemma

- ▶ Three, pick two
 1. Fixed exchange rate
 2. International capital mobility (UIP holds)
 3. Monetary policy independence (allow $i_H \neq i_F$)

- ▶ Example
 - ▶ Fixed rate + capital mobility: UK in the 1990s
 - ▶ Fixed rate + monetary policy: China today
 - ▶ Capital mobility + monetary policy: U.S. today

The United Kingdom, 1992

- ▶ Fixed rate and free movement of capital → No monetary policy discretion
- ▶ U.K. and Germany had a fixed exchange rate as part of a system of European fixed exchange rates: The ERM, a precursor to the Euro
- ▶ Germany is worried about inflation and wants high interest rates
- ▶ High German interest rates means U.K. must adopt high interest rates to keep the exchange rate fixed (UIP says $i_{GR} = i_{UK}$)
- ▶ Weak U.K. economy means high interest rates are not desirable
- ▶ Lack of U.K. policy credibility invites speculation
 - ▶ Will U.K. keep the exchange rate fixed?

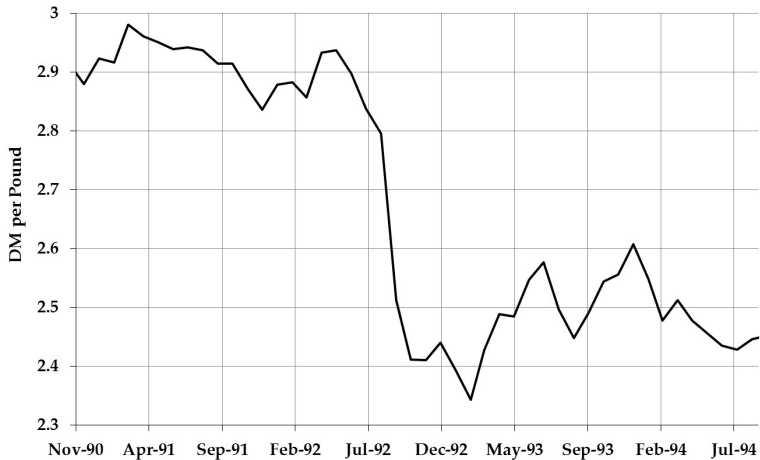
Defending a fixed exchange rate

- ▶ Bank of England can
 - ▶ Keep interest rates high
 - ▶ Devalue the currency
 - ▶ Intervene in the fx market and use foreign reserves to keep the pound from devaluing (let $i_{uk} < i_{GR}$ and make up shortage of DMs)
- ▶ Investors speculate that BoE would rather devalue than keep interest rates high during a recession: policy commitment is not credible
 - ▶ Borrow in pounds, sell pounds for marks
 - ▶ BoE must raise interest rates, drain reserves, or devalue
 - ▶ Becomes a game of chicken

Black Wednesday

- ▶ September 16, 1992
- ▶ U.K. raises interest rates from 10% to 12%
 - ▶ Promise to raise rate to 15% later that day
- ▶ Does not stop speculators from selling pounds
 - ▶ Government abandons fixed rate regime
 - ▶ Soros reportedly makes about \$1 billion
- ▶ Thought to be a self-fulfilling crisis
 - ▶ Fixed rate may have held if not attacked
 - ▶ Fixed rate failed when attacked

Black Wednesday ($\approx 20\%$ devaluation)



China, present

- ▶ Fixed rate + independent monetary policy → No free movement of capital
- ▶ China fixes exchange rate against dollar
 - ▶ Yuan appears undervalued relative to dollar
- ▶ People's Bank can change its monetary policy
 - ▶ Can raise interest rates (compared to US) to battle inflation
 - ▶ Capital controls keep UIP from forcing fx rate to change
- ▶ Costs of capital controls?
 - ▶ Hinders efficient use of capital and limits financial development
 - ▶ Overvaluation can lead to black market for currency
 - ▶ Can discourage foreign investment
- ▶ Works for now, but conflicts with goal of “international renminbi”

United States, present

- ▶ Capital mobility + discretionary monetary policy → floating exchange rate
- ▶ Federal Reserve's mandate
 - ▶ Low and stable inflation
 - ▶ Maximum sustainable employment
 - ▶ Nothing about exchange rates
- ▶ Monetary policy based on domestic conditions
- ▶ Free movement of capital into/out of country
- ▶ Changes in interest rates shift, expectations change the exchange rate

Exchange rate variation (1999–2014)

	Floating rates			Fixed rates		
	euro- usd	yen- usd	pound- usd	yuan- usd	hkd- usd	dk- usd
mean	0.84	105.18	0.61	7.50	7.78	7.45
std.	0.14	14.48	0.06	0.84	0.02	0.01
std./mean	0.17	0.14	0.10	0.11	0.003	0.001

- ▶ More variation in floating exchange rates
- ▶ Yuan fx rates have seen some forecastable adjustment
- ▶ Fx variation makes foreign pricing more difficult

Summary

- ▶ The trilemma: Cannot have all three
 1. Fixed exchange rate
 2. International capital mobility
 3. Independent monetary policy
- ▶ Fixed exchange rate benefits
 - ▶ Provide a nominal anchor
 - ▶ Facilitate cross-border trade and investment
- ▶ Fixed exchange costs
 - ▶ Lose either monetary policy or capital mobility
 - ▶ Subject to speculative attacks