

International Money and Banking:

16. Exchange Rate Regimes and the Euro

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Exchange Rates

- We have talked a lot about interest rates but have not yet focused on another important aspect of monetary policy: Exchange rates.
- Why do exchange rates matter? Consider the Euro-Pound exchange rate, so that $\text{€}1 = \text{£}X$.
- Suppose X goes up, so the Euro is worth more. What happens to exports and imports?
 - 1 **Exports:** For each pound in sterling revenues that an Irish firm earns, they now get less revenue in euros unless they increase their UK price. Exporting will be less profitable and total exports will decline. Alternatively, if they decide to try to maintain profit by increasing their price in the UK, this will reduce demand, so exports will still decline.
 - 2 **Imports:** UK firms will get more euro revenues from exporting to Ireland at the same prices, so they may decide to do more of this. Alternatively, they may decide to lower their euro-denominated prices in Ireland and increase their market share while still getting the same sterling revenue per unit. Either way, imports will increase.

Exchange Rates and Economic Growth

- So while an increase in the value of the Euro may sound like a good thing for Ireland, it tends to reduce exports, increase imports, and thus reduce Irish GDP.
- In contrast, a depreciation of the currency boosts exports and has a positive effect on economic growth.
- For these reasons, a depreciation of the currency is often welcome in a recession and the absence of this tool when the exchange rate is fixed is often pointed to as a downside of such regimes.
- That said, exchange rate depreciation has its downsides also:
 - ① **Inflation:** Depreciation tends to make imports more expensive and so add to inflation. This is one reason why central bankers tend to say they favour a strong currency. For small open economies that import a lot, the inflationary effects of depreciation are much bigger.
 - ② **Temporary Boost:** The boost to growth is temporary. Over time, the increase in import prices may feed through to higher wages. This gradually erodes the competitive benefits from devaluation.

Exchange Rates and Bond Yields

- Suppose money can flow easily between the US and the Euro area.
- Suppose also that investors can buy either US or European risk-free one-period bonds. European bonds have an interest rate of i_t^E and US bonds have an interest rate of i_t^{US} .
- By this, we mean an investment of \$1 in the US bond period t returns $\$(1 + i_t^{US})$ in period $t + 1$. For example, if the bond has a 4 percent interest rate, then an investment of \$1 in period t returns \$1.04 in period $t + 1$, so $i_t^{US} = 0.04$.
- Let e_t represent the amount of dollars that can be obtained for one Euro.
- A risk-neutral US investor has two possible investment options
 - 1 Keep the money invested in US bonds and obtain $\$(1 + i_t^{US})$ next period.
 - 2 Change the dollars into euro, purchase a European bond, then convert the proceeds back into dollars at next period's exchange rate. This gives a payoff of $\$(1 + i_t^E) \frac{e_{t+1}}{e_t}$ next period.
- Which one does she pick?

Uncovered Interest Parity

- Risk-neutral investors care only about the expected return, so they will buy the euro-denominated bond if

$$(1 + i_t^E) \frac{E_t e_{t+1}}{e_t} > 1 + i_t^{US}$$

where $E_t e_{t+1}$ denotes investors expected value for next period's euro-to-dollar exchange rate.

- They will buy the dollar-denominated bond if

$$(1 + i_t^E) \frac{E_t e_{t+1}}{e_t} < 1 + i_t^{US}$$

- The **uncovered interest parity** (UIP) theory says bond yields should adjust so that investors are indifferent between foreign and domestic bonds and thus are willing both of them at current yields. Like the expectations theory of long-term interest rates, it relies on the idea of arbitrage in financial markets: Financial prices adjust so there is no easy way to outperform other investors.
- In other words, UIP predicts

$$(1 + i_t^E) \frac{E_t e_{t+1}}{e_t} = 1 + i_t^{US}$$

Uncovered Interest Parity and Expected Exchange Rates

- The UIP equation

$$(1 + i_t^E) \frac{E_t e_{t+1}}{e_t} = 1 + i_t^{US}$$

tells us that if European interest rates are lower than US rates, then the Euro must be expected to appreciate.

- To get a sense of the magnitudes here, note that

$$\frac{E_t e_{t+1}}{e_t} = \frac{1 + i_t^{US}}{1 + i_t^E}$$

- For relatively small values of i_t^{US} and i_t^E , this can be well approximated as

$$\frac{E_t e_{t+1}}{e_t} = 1 + i_t^{US} - i_t^E$$

- So if US interest rates are 1 percent higher than Euro Area interest rates, then the dollar is expected to decline by 1 percent.

Section C Examples: Uncovered Interest Parity

Assume the uncovered interest parity (UIP) theory is true, there is no default risk on government bonds and free movement of capital. The return on US one-year government bonds is 4 percent. The return on German one-year government bonds is 2 percent. What does the UIP predict will happen to the euro-dollar exchange rate over the next year?

- Using the approximated UIP equation

$$\frac{E_t e_{t+1}}{e_t} = 1 + i_t^{US} - i_t^E \Rightarrow \frac{E_t e_{t+1}}{e_t} = 1 + 0.04 - 0.02 = 1.02$$

So the euro is expected to go up in value by about 2 percent over the next year.

- Some of you answer this question by saying “the US bond has a higher rate and is more attractive, so the dollar will go up as people try to buy more dollars.” This is exactly the wrong answer. If people thought the dollar was going up as well as the dollar bond having a higher interest rate, there would be even less reason for anyone to hold the European bond yielding only 2 percent.

Section C Examples: Uncovered Interest Parity

Assume the uncovered interest parity (UIP) theory is true, there is no default risk on government bonds and free movement of capital. The return on US one-year government bonds is 5 percent and the euro is expected to appreciate against the dollar by 2 percent. What does the UIP predict the current interest rates on euro-denominated bonds should be?

- Using the approximated UIP equation

$$\frac{E_t e_{t+1}}{e_t} = 1 + i_t^{US} - i_t^E \Rightarrow 1.02 = 1 + 0.05 - i_t^E \Rightarrow i_t^E = 0.03$$

So the euro is expected to go up in value by about 3 percent over the next year.

The Trilemma

- UIP holds pretty well in the real world and it implies that it is not possible to have all three of the following:
 - 1 Free capital mobility (money moving freely in and out of the country).
 - 2 A fixed exchange rate.
 - 3 Independent monetary policy.
- You can have any two, but not the third:
 - 1 You can have free capital mobility and a fixed exchange rate (so that $E_t e_{t+1} = e_t$) but then your interest rates must equal those of the area you have fixed exchange against ($i_t^{US} = i_t^E$) e.g. Ireland.
 - 2 You can have free capital mobility and set your own monetary policy ($i_t^{US} \neq i_t^E$) but then your exchange rate must fluctuate freely (so that $E_t e_{t+1} \neq e_t$) e.g. the UK.
 - 3 You can set your own monetary policy and fix your exchange rate against another country, but then you must intervene in capital markets to prevent people taking advantage of investment arbitrage opportunities, e.g. China.

Optimal Currency Areas

- What do governments consider when deciding whether or not to have their own currency that floats freely against other currencies?
- Small countries in which most of GDP is exported place a lot of value on stability of their exchange rate, particularly if they are selling most of their goods and services to one economic area.
- For these countries, it is perhaps best to have a fixed exchange rate against their main trading partner. Indeed, they may decide to simply adopt the same currency as their partner.
- These small currencies are generally considered be too small to be **optimal currency areas**.
- For larger countries, trade may not be as important, so exchange rate stability is not key.
- If these countries are less open, they may have their own distinct economic cyclical pattern and may not be happy with the macroeconomic policy that stems from having the same level of interest rates as their trading partners.
- In this case, they may decide its best to have their own currency.

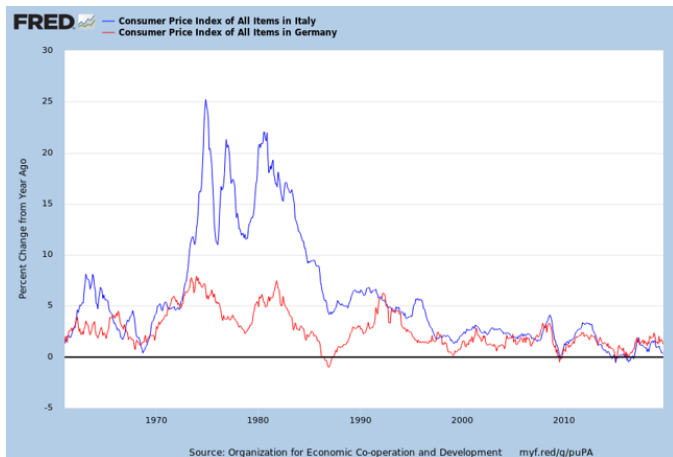
Complications for the Euro as a Common Currency

- 1 **Size and Asymmetries:** Across such a large economic area as the Eurozone, it is inevitable that various member states may be going through very different phases of the economic cycle. For instance, at the moment, the monetary policy that suits Germany is not the policy that would suit Ireland or Spain.
- 2 **Lack of Fiscal Integration:** When regions inside common currency areas that are doing badly can pay less tax and receive extra transfer payments, the inability to pursue a regional monetary policy is less likely to be a problem.
- 3 **Lack of Labour Mobility:** There is relatively little labour mobility between EU countries, so unemployment will not be reduced by out migration in the way it is in US states, for example.
- 4 **Lack of Central Backstop for Banking:** In the US, deposit insurance and resolution of insolvent banks is done on a centralised basis. The Euro area now has a common bank supervisor but deposit insurance and resolution is still likely to remain a largely national responsibility.

Arguments for the Common Currency

- 1 Many countries in the EU had wanted to have a stable exchange rate relative to the German mark.
- 2 EMS members largely had to follow Germany's monetary policies but did not get a say in setting policy. A common currency would give every member a say.
- 3 Fixed exchange rate regimes can be subject to self-fulfilling speculative crises. Investors sell large amounts of the currency (e.g. the punt) to obtain the alternative (e.g. the DM) until the central bank runs out of DM reserves and then has to devalue. Full EMU was seen as an alternative to “fixed” exchange rates with regular crises.
- 4 Countries such as Italy, which historically had a poor inflation performance, hoped to benefit from the Bundesbank's credibility by joining a new “hard” common currency.
- 5 The common currency was seen as reinforcing the microeconomic gains from the single European market project.
- 6 There was also a **political** element, with the single currency something that would help deepening the process of European integration in other areas.

Inflation in Italy and Germany



Currency Choice for Ireland

- All EU members must maintain full capital mobility as part of the Single Market. So the choice is between having a flexible exchange rate or giving up control of their own monetary policy.
- For Ireland, the decision to join the Euro was a complex one and Euro membership was a decidedly mixed blessing:
 - 1 Ireland is a small open economy so it could be argued that it is not an optimal currency area.
 - 2 But it has no single dominant trading partner currency. Ireland trades a lot with the Euro area, the UK and the US, so there was no clear choice of currency to peg against and perhaps a floating rate might still have made sense.
 - 3 However, a floating exchange rate may mean that investors may demand a risk premium for investing in a country's debt if there is a chance that it may devalue its currency. With this risk premium eliminated, membership of the Euro led to lower interest rates.
 - 4 These low interest rates boosted Irish economic growth. But at a time of exceptional growth, this wasn't helpful for maintaining stability and helped to fuel the housing bubble and subsequent banking crash.

Recap: Key Points from Part 16

Things you need to understand from these notes.

- 1 How do changes in exchange rates affect the economy?
- 2 Effects over time of devaluations.
- 3 Uncovered interest parity.
- 4 The Trilemma.
- 5 Optimal currency areas.
- 6 Arguments for and against a common European currency.
- 7 Motivations for European countries joining the euro.