

13.3: Interest Rate Parity with Fixed Exchange Rates

Learning Objective

1. Learn how the interest rate parity condition changes in a system of credible fixed exchange rates.

One of the main differences between a fixed exchange rate system and a floating system is that under fixed exchange rates the central bank will have to “do something” periodically. In contrast, in a floating system, the central bank can just sit back and watch since it has no responsibility for the value of the exchange rate. In a pure float, the exchange rate is determined entirely by private transactions.

However, in a fixed exchange rate system, the central bank will need to intervene in the foreign exchange market, perhaps daily, if it wishes to maintain the credibility of the exchange rate.

We’ll use the AA-DD model to explain why. Although the AA-DD model was created under the assumption of a floating exchange rate, we can reinterpret the model in light of a fixed exchange rate assumption. This means we must look closely at the interest rate parity condition, which represents the equilibrium condition in the foreign exchange market.

Recall that the AA-DD model assumes the exchange rate is determined as a result of investor incentives to maximize their rate of return on investments. The model ignores the potential effect of importers and exporters on the exchange rate value. That is, the model does not presume that purchasing power parity holds. As such, the model describes a world economy that is very open to international capital flows and international borrowing and lending. This is a reasonable representation of the world in the early twenty-first century, but would not be the best characterization of the world in the mid-1900s when capital restrictions were more common. Nonetheless, the requisite behavior of central banks under fixed exchange rates would not differ substantially under either assumption.

When investors seek the greatest rate of return on their investments internationally, we saw that the exchange rate will adjust until interest rate parity holds. Consider interest rate parity (IRP) for a particular investment comparison between the United States and the United Kingdom. IRP means that $R_0 R_{\$} = R_0 R_{\pounds}$. We can write this equality out in its complete form to get

where the left-hand side is the U.S. interest rate and the right side is the more complicated rate of return formula for a UK deposit with interest rate i_{\pounds} . (See Chapter 4 and Chapter 5 for the derivation of the interest rate parity condition.) The last term on the right represents the expected appreciation (if positive) or depreciation (if negative) of the pound value with respect to the U.S. dollar.

In a floating exchange rate system, the value of this term is based on investor expectations about the future exchange rate as embodied in the term $E_{\$/\pounds}^e$, which determines the degree to which investors believe the exchange rate will change over their investment period.

If these same investors were operating in a fixed exchange rate system, however, and if they believed the fixed exchange rate would indeed remain fixed, then the investors’ expected exchange rate should be set equal to the current fixed spot exchange rate. In other words, under credible fixed exchange rates, $E_{\$/\pounds}^e = E_{\$/\pounds}$. Investors should not expect the exchange rate to change from its current fixed value. (We will consider a case in which the investors’ expected exchange rate does not equal the fixed spot rate in Chapter 12, [Section 12.6](#).)

With $E_{\$/\pounds}^e = E_{\$/\pounds}$, the right side of the above expression becomes zero, and the interest rate parity condition under fixed exchange rates becomes

$$i_{\$} = i_{\pounds}.$$

Thus for interest rate parity to hold in a fixed exchange rate system, the interest rates between two countries must be equal.

Indeed, the reason this condition in a floating system is called “interest rate parity” rather than “rate of return parity” is because of our history with fixed exchange rates. Before 1973, most of the world had maintained fixed exchange rates for most of the time. We can see now that under fixed exchange rates, rates of return in each country are simply the interest rates on individual deposits. In other words, in a fixed system, which is what most countries had through much of their histories, interest rate parity means the equality of interest rates. When the fixed exchange rate system collapsed, economists and others continued to use the now-outdated terminology: interest rate parity. Inertia in language usage is why the traditional term continues to be applied (somewhat inappropriately) even today.

key takeaway

- For interest rate parity to hold in a fixed exchange rate system, the interest rates between two countries must be equal.

exercise

1. **Jeopardy Questions.** As in the popular television game show, you are given an answer to a question and you must respond with the question. For example, if the answer is “a tax on imports,” then the correct question is “What is a tariff?”
 - These must be equalized between countries for interest rate parity to hold under fixed exchange.
 - If the fixed exchange rates are credible, then the expected exchange rate should be equal to this exchange rate.
 - Of *intervene* or *do not intervene*, this is what a central bank should do in the Forex market if it intends to maintain credible fixed exchange rates.

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