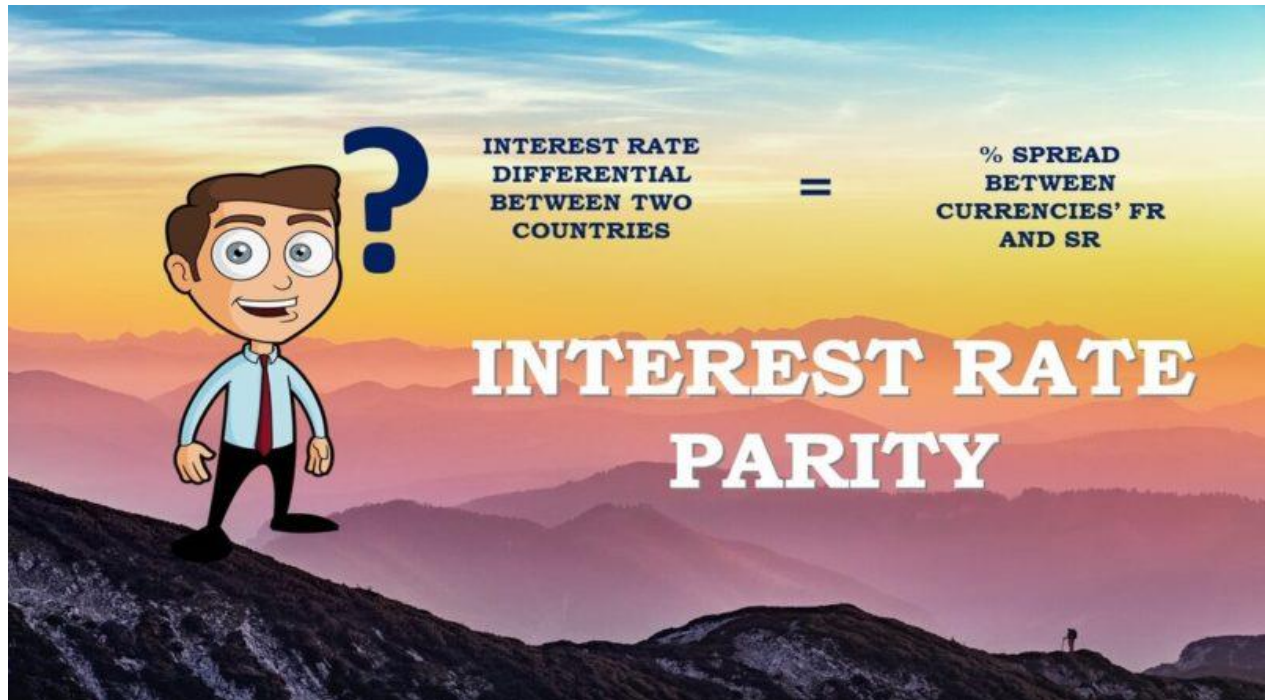


WHAT IS INTEREST RATE PARITY?

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Interest rate parity is a no-arbitrage condition. In simple word an investor will not be allowed to gain a riskless return by borrowing at lower rate in one country and investing at high rate in another country. According to this theory interest rate differential between two countries is approximately equal to percentage spread (Annualised premium or discount) between the currencies' FR and SR. In this way Interest Rate Parity establish a link between forex and money market.

Forward Rate vs. Spot Rate:

The precise meanings of the terms "forward rate" and "spot rate" are somewhat different in different markets. But what they have in common is that they refer, for example, to the current price or bond yield—the spot rate—versus the price or yield for the same product or instrument at some point in the future—the forward rate.

In currency markets, the spot rate, as in most markets, refers to the immediate exchange rate. The forward rate, on the other hand, refers to the future exchange rate agreed upon in forward contracts.

For example, if an Indian electronics manufacturer has a large order to be shipped to America in one year, and expects the U.S. dollar to be much weaker by that time, it might be able to transact a currency forward to lock in a more favourable exchange rate.

As per Interest Rate Parity, currency having lower interest rate will be at premium and currency having higher interest rate will always be at discount.

There are **two assumption** to interest parity, the **first one is capital mobility and other one is perfect substitutability of domestic and foreign assets**. If there is market equilibrium then return on domestic assets will be equal to exchange rate adjusted expected return on foreign assets.

There are **two types of interest rate parity** the first one is **uncovered interest rate parity** where there is always a risk of unanticipated change in exchange rate and the second one is **covered interest parity** where risk of unanticipated change in exchange rate is covered through forward contract.

Formula

The Interest Rate Parity principle is used to determine theoretical forward rate and the formula is under-

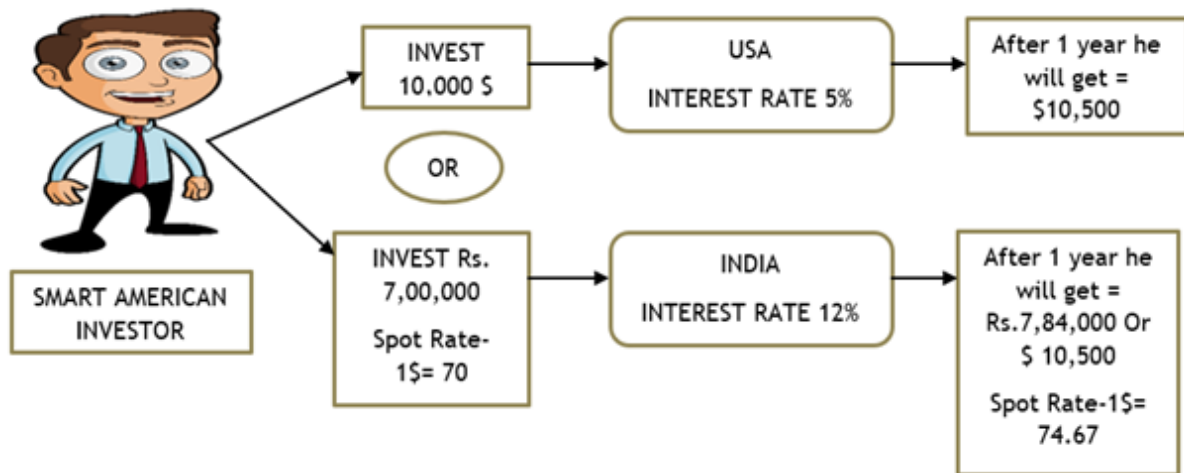
$$\text{Forward Rate} = \text{Spot Rate} \times \frac{1 + \text{interest rate of the quoting currency}}{1 + \text{interest rate of base currency}}$$

$$\text{Forward Points} = \text{FR} - \text{SR}$$

$$\text{Annualise Premium or Discount} = \frac{\text{FR} - \text{SR}}{\text{SR}} \times \frac{12}{t} \times 100$$

Example

Now let's take an example for better understanding. Do you know an another meaning of 'Parity' is 'Equality'? According to Interest Rate Parity theory, if you are thinking that another country has higher interest rate then it will help you to make big money then you are wrong. You will get the same return as you would have get even if you are investing the same amount in your own country which has lower rate of interest.



In the above example you can see that smart American Investor, that investor has \$10,000 and he has two option to invest, either he can invest in USA @ 5% OR he can invest in India @12%. What do you think what he should do? Whether he will go for to earn 5% or @12%. Look he is a smart investor he knows all about the Interest Rate Parity theory. He knows in both the cases after one year he will get \$10,500.

This theory establishes a connection between money market and forex market. Have you seen in above example how spot rate adjusted itself?

It's clear if Interest Rate Parity is valid then you will not be able to take benefit of interest differential. But if Interest Rate Parity is not valid then in that case there would be an opportunity of arbitrage.

Let's calculate in above example % change in currency rate-

$$(74.67-70)/70*100 = 6.67\% \text{ (Premium)}$$

$$\text{Interest differential} = 12\% - 5\% = 7\%$$

Now here ,it is evident that interest differential of two currencies is approximately equal to 7% of spread between future/ forward rate and spot rate. Arbitrage is the activity of purchasing shares or currency in one financial market and selling it at a premium (profit) in another.

Covered Interest Rate Parity (CIRP)

According to Covered Interest Rate theory, the exchange rate forward premiums (discounts) nullify the interest rate differentials between two sovereigns/countries. In other words, covered interest rate theory says that the difference between interest rates in two countries is nullified by the spot/forward currency premiums so that the investors could not earn an arbitrage profit.

Example

Assume Yahoo Inc., the U.S. based multinational, has to pay the European employees in Euro in a month's time. Yahoo Inc. can do this in many ways, one of which is given below –

- Yahoo can buy Euro forward a month (30 days) to lock in the exchange rate. Then it can invest this money in dollars for 30 days after which it must convert the dollars to Euro. This is known as covering, as now Yahoo Inc. will have no exchange rate fluctuation risk.

- Yahoo can also convert the dollars to Euro now at the spot exchange rate. Then it can invest the Euro money it has obtained in a European bond (in Euro) for 1 month (which will have an equivalently loan of Euro for 30 days). Then Yahoo can pay the obligation in Euro after one month.

Under this model, if Yahoo Inc. is sure that it will earn an interest, it may convert fewer dollars to Euro today. The reason for this being the Euro's growth via interest earned. It is also known as covering because by converting the dollars to Euro at the spot rate, Yahoo is eliminating the risk of exchange rate fluctuation.

Uncovered Interest Rate Parity (UIRP)

Uncovered Interest Rate theory says that the expected appreciation (or depreciation) of a particular currency is nullified by lower (or higher) interest.

Example

In the given example of covered interest rate, the other method that Yahoo Inc. can implement is to invest the money in dollars and change it for Euro at the time of payment after one month.

This method is known as uncovered, as the risk of exchange rate fluctuation is imminent in such transactions.

Implications of IRP Theory

If IRP theory holds, then it can negate the possibility of arbitrage. It means that even if investors invest in domestic or foreign currency, the ROI will be the same as if the investor had originally invested in the domestic currency.

- When domestic interest rate is below foreign interest rates, the foreign currency must trade at a forward discount. This is applicable for prevention of foreign currency arbitrage.
- If a foreign currency does not have a forward discount or when the forward discount is not large enough to offset the interest rate advantage, arbitrage opportunity is available for the domestic investors. So, domestic investors can sometimes benefit from foreign investment.
- When domestic rates exceed foreign interest rates, the foreign currency must trade at a forward premium. This is again to offset prevention of domestic country arbitrage.
- When the foreign currency does not have a forward premium or when the forward premium is not large enough to nullify the domestic country advantage, an arbitrage opportunity will be available for the foreign investors. So, the foreign investors can gain profit by investing in the domestic market.