Eight Majors

Unlike the stock market, where investors have thousands of stocks to choose from, in the currency market, you only need to follow eight major economies and then determine which will provide the best undervalued or overvalued opportunities. These following eight countries make up the majority of trade in the currency market:

1. United States
2. Eurozone (the ones to watch are Germany, France, Italy and Spain)
3. Japan
4. United Kingdom
5. Switzerland
6. Canada
7. Australia
8. New Zealand

These economies have the largest and most sophisticated financial markets in the world. By strictly focusing on these eight countries, we can take advantage of earning interest income on the most credit worthy and liquid instruments in the financial markets.

Economic data is released from these countries on an almost daily basis, allowing investors to stay on top of the game when it comes to assessing the health of each country and its economy.)

FX Forwards

Sometimes, a business needs to do foreign exchange at some time in the future. For instance, it might sell goods in Europe, but will not receive payment for at least 1 year. How can it price its products without knowing what the foreign exchange rate, or spot price, will be between the United States dollar (USD) and the Euro (EUR) 1 year from now? It can do so by entering into a forward contract that allows it to lock in a specific rate in 1 year.

A forward contract is an agreement, usually with a bank, to exchange a specific amount of currencies sometime in the future for a specific rate—the forward exchange rate.

How is this forward exchange rate calculated? It cannot depend on the exchange rate 1 year from now because that is not known. What is known is the spot price, or the exchange rate, today, but a forward price cannot simply equal the spot price, because money can be safely invested to earn interest, and, thus, the future value of money is greater than its present value.

What seems reasonable is that if the current exchange rate of a quote currency with respect to a base currency equalizes the present value of the currencies, then the forward exchange rate should equalize the future value of the quote currency and the future value of the base currency, because, as we shall see, if it doesn't, then an arbitrage opportunity arises.

Calculating the Forward Exchange Rate

The future value of a currency is the present value of the currency + the interest that it earns over time in the country of issue. (For a good introduction, see Present and Future Value of Money, with Formulas and Examples.) Using simple annualized interest, this can be represented as:

Future Value of Currency (FV) Formula$FV=P(1+r)n$ FV = Future Value of Currency

P = Principal

r = interest rate per year

n = number of years

For example, if the interest rate in the United States is 5%, then the future value of a dollar in 1 year would be $1.05.

If the forward exchange rate equalizes the future values of the base and quote currency, then this can represented in this equation:

Forward Exchange Rate x Future Value of Base Currency = Spot Price x Future Value of Quote Currency

Dividing both sides by the future value of the base currency yields the following:

Forward Exchange Rate Formula:

Forward Exchange Rate = Spot Price x Future Value of Quote CurrencyFuture

Value of Base Currency = $S(1+rq)n(1+rb)n$

S = Spot Price

rq = Interest Rate of Quote Currency

rb = Interest Rate of Base Currency

n = Number of Compounding Periods

Example:

If the spot price for USD/EUR = 0.7395, then this means that 1 USD = .7395 EUR. Assume the interest rate in Europe is currently 3.75%, and the current interest rate in the United States is 5.25%. In 1 year, 1 dollar earning United States interest will be worth $1.0525 and 0.7395 Euro earning the European interest rate of 3.75% will be worth 0.7672 Euro. Thus, the forward spot rate 1 year from now is equal to 0.7672/1.0525 = .7289, or, using the above equation (note,

however, that rounding errors between the 2 different methods of calculating the forward rate results in slight differences):

Forward Exchange Rate = S(1+rq)n(1+rb)n = 0.7395(1+0.0375)/(1+0.0525)1

= 0.7395 *1.0375/1.0525

= 0.7290

Thus, the forward exchange rate, which is often expressed simply as the forward rate, is 1 USD = 0.7290 (rounded) Euro.

Interest Rate Parity:

The reason why the forward exchange rate is different from the current exchange rate is because the interest rates in the countries of the respective currencies is usually different, thus, the future value of an equivalent amount of 2 currencies will grow at different rates in their country of issue.

The forward exchange rate equalizes the difference in interest rates of the 2 countries. Thus, the forward exchange rate maintains interest rate parity. A corollary is that if the interest rates of the 2 countries are the same, then the forward exchange rate is simply equal to the current exchange rate.

FX Spot — Forward Arbitrage (Covered Interest Arbitrage)

Interest rate parity determines what the forward exchange rate will be. So how can one profit if interest rate parity is not maintained?

As already noted, if the future values of the currencies are not equalized, then an arbitrage opportunity will exist, allowing an arbitrageur to earn a riskless profit.

Taking the above example of dollars and Euros, we found the forward rate to be 0.7289. But what if the forward rate were only 0.72? Then we can borrow, let's say, $1,000,000 to buy Euros, deposit the Euros in a bank account, earn interest on it for 1 year, then convert the Euros back to dollars, then pay off the loan. The rest is risk-free profit. This is known as FX spot-forward arbitrage or covered interest arbitrage.

Example: Covered Interest Arbitrage

Borrow: $1,000,000.00

Owe in 1 year at 5.25% interest: $1,052,500.00

USD/EUR Spot Price:0.7395

Buy $1,000,000 worth of Euros and deposit: € 739,500.00

Value in 1 year, earning 3.75% interest: € 767,231.25

Forward Rate: 0.72

Convert Euros to dollars at forward rate

= € 767,231.25 / 0.72 = $1,065,598.96

Profit after paying off loan = $1,065,598.96 - $1,052,500.00 = $13,098.96

FX Forward Price Quotes Are Expressed in Forward Points

Because exchange rates change by the minute, but changes in interest rates occur much less frequently, forward prices, which are sometimes called forward outrights, are usually quoted as the difference in pips—forward points—from the current exchange rate, and, often, not even the sign is used, since it is easily determined by whether the forward price is higher or lower than the spot price.

Forward Points = Forward Price - Spot Price

Since currency in the country with the higher interest rate will grow faster and because interest rate parity must be maintained, it follows that the currency with a higher interest rate will trade at a discount in the FX forward market, and vice versa. So if the currency is at a discount in the forward market, then you subtract the quoted forward points in pips; otherwise the currency is trading at a premium in the forward market, so you add them.

In our above example of trading dollars for Euros, the United States has the higher interest rate, so the dollar will be trading at a discount in the forward market. With a current exchange rate of EUR/USD = 0.7395 and a forward rate of 0.7289, the forward points is equal to 106 pips, which in this case would be subtracted (0.7289 - 0.7395 = -106). So if a dealer quotes you a forward price as 106 forward points, and the EUR/USD happens to be trading at 0.7400, then the forward price at that moment would be 0.7400 - 106 = 0.7294. You simply subtract the forward points from whatever the spot price happens to be when you make your transaction.

FX Forward Settlement Dates

FX forward contracts are usually settled on the 2nd good business day after the trade, often depicted as T+2. If the trade is a weekly trade, such as 1,2, or 3 weeks, settlement is on the same day of the week as the forward trade, unless it is a holiday, then settlement is the next business day. If it is a monthly trade, then the forward settlement is on the same day of the month as the

initial trade date, unless it is a holiday. If the next business day is still within the settlement month, then the settlement date is rolled forward to that date. However, if the next good business day is in the next month, then the settlement date is rolled backward, to the last good business day of the settlement month.

The most liquid forward contracts are 1 and 2 week, and the 1,2,3, and 6 month contracts. Although forward contracts can be done for any time period, any time period that is not liquid is referred to as a broken date.

Global Financial Holidays

Goodbusinessday.com provides updated information — organized by country, city, currency and exchange — on holidays and observances affecting global financial markets, including bank and public holidays, currency non-clearing days, trading and settlement holidays.

Nondeliverable Forwards (NDFs)

Some currencies cannot be traded directly, often because the government restricts such trading, such as the Chinese Yuan Renminbi (CNY). In some cases, a trader may get a forward contract on the currency that does not result in delivery of the currency, but is, instead, cash settled.

The trader would sell a forward in a tradable currency in exchange for a forward contract in the tradeless currency. The amount of cash in profit or loss would be determined by the exchange rate at the time of settlement as compared to the forward rate.

Example — Nondeliverable Forward

The current price for USD/CNY = 7.6650. You think the price of the Yuan will rise in 6 months to 7.5 (in other words, the Yuan will strengthen against the dollar), so you sell a forward contract in USD for $1,000,000 and buy a forward contract for 7,600,000 Yuan for the forward price of 7.6. If, in 6 months, the Yuan does rise to 7.5 per dollar, then the cash-settled amount in USD would be 7,600,000/7.5 = 1,013,333.33 USD, yielding a profit of $13,333.33. (The forward exchange rate was simply picked for illustration, and is not based on current interest rates.)

FX Futures

FX futures are basically standardized forward contracts. Forwards are contracts that are individually negotiated and traded over the counter, whereas futures are standardized contracts trading on organized exchanges. Most forwards are used for hedging exchange risk and end in the actual delivery of the currency, whereas most positions in futures are closed out before the delivery date, because most futures are bought and sold purely for the potential profit.