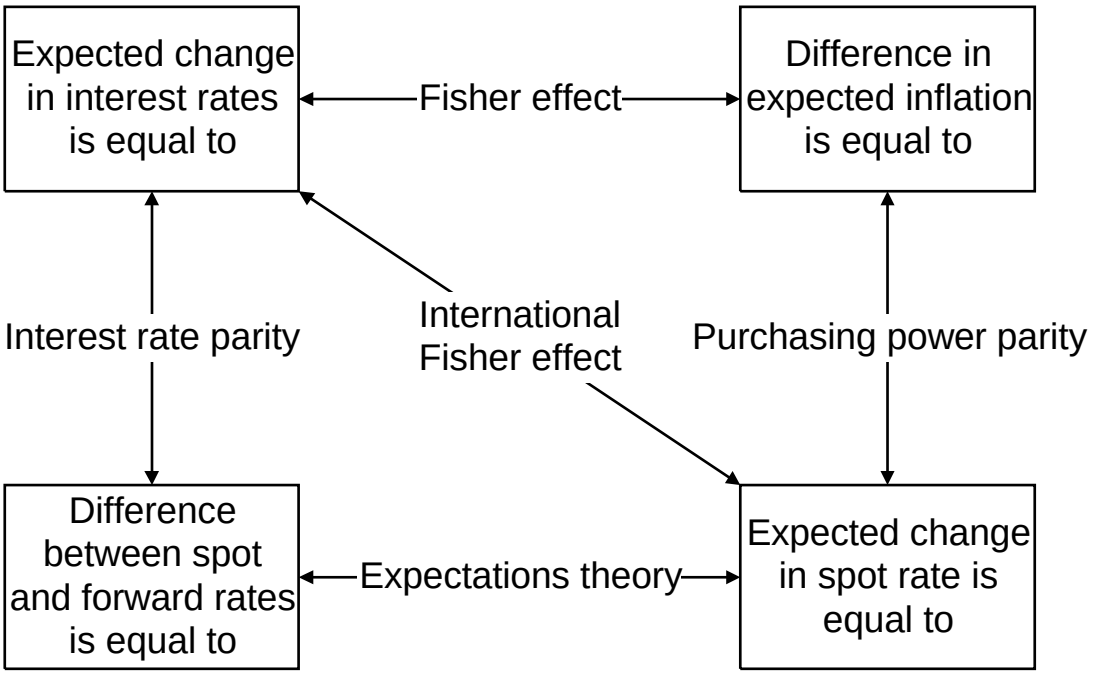
Currency markets

There is a host of different relationships that **should** exist within and between different financial markets. The word “should” has to be emphasised because it is often difficult to tell whether a logical relationship that can be determined mathematically actually works in the real world (where it might be affected and influenced by psychological factors, tax implications, other regulations, or just errors in the assumptions underlying the maths).

Currency markets can be characterised by a series of (apparently) simple relationships that can be summed up in the following diagram:



This series of relationships boils down to thinking about what would happen if markets were “perfect” (in terms of the economist’s dream-world). In a perfect market, these relationships would be held in place by the actions of market participants, who would **arbitrage** in order to deal with any discrepancies. That is just another way of saying that market forces would stamp out differences.

You can read about the mathematics underlying all of this in your study materials. This note is intended to help you to get more of a “common sense” feel for the interaction between markets.

The **Fisher effect** says that interest rates are affected by the rate of inflation. Economists have observed that people need a real rate of interest (that is, over and above the rate of inflation) of about 2% in order to be willing to defer consumption (in other words, to save). That means that rates offered by potential borrowers have to exceed the rate of inflation by about 2%. Actual interest rates vary to reflect risks (which would require a further premium on top of the risk-free rate) and a host of other factors, so it is impossible to prove that the Fisher effect works very effectively in practice. It is, however, clear that depositors in countries with very high rates of inflation are almost always offered correspondingly high rates on their bank balances.

Purchasing power parity suggests that goods should cost the same everywhere. If that was not the case then it would become cheaper to buy “things” (whether that be consumer goods or raw materials) from abroad. Consumers will exploit any anomalies and suppliers (or government bankers) will be forced to bring their prices into line. It is clear that purchasing power parity does not operate that effectively for individual consumers (you couldn’t buy a litre of milk from a French supermarket even if it was several cents cheaper than at home). There are, however, global markets which ensure that many corporate customers pay the same price for basic commodities.

Interest rate parity works very effectively in the financial markets. It works because of the activities of arbitrageurs who monitor rates on offer in various markets on a real-time basis and they move very large amounts of money in order to exploit any discrepancies. For example, suppose British and American interest rates fell out of step with the spot and forward rates offered for the £ GB against the $ US. An arbitrageur’s computer would spot that it was possible to convert £ into $, deposit the proceeds in a US bank at a fixed rate and then sell forward the expected US $ balance in three months for a larger number of £ than could be had from leaving the money where it is. The arbitrage company wouldn’t be gambling, it would have a “sure thing” that was only possible because of an anomaly in the markets. The rush of money through the system would quickly alert those offering forward rates and so the anomaly would only be in place for a matter of seconds (that is why computers have to do the trading – human traders would take too long).

Expectations theory boils down to saying that the movement predicted by the forward markets has to reflect the market’s expectations of changes in the exchange rate. Suppose, for example, that the forward rate for converting € into $ US suggests that the $ is going to strengthen against the €. Suppose that the market view was that the $ was going to weaken. It would make sense for those who felt this way to speculate (in other words, to gamble) by selling $ forward for €. When the time came to settle the deal, if the speculator’s forecast came true then it would be possible to buy $ at the spot rate for fewer € than the other party to the deal would have to pay for them.

Finally, the **international Fisher effect** says that the effects of the other relationships will create a relationship between interest rates offered in different countries and the relative strengths of their respective currencies.

This can often be seen at work in slightly misleading adverts in newspaper financial pages. Some banks offer to make apparently very cheap loans denominated in currencies such as the Swiss Franc. The borrower will, indeed, pay a relatively low rate of interest on this compared to, say, the rates offered on £ mortgages from British banks. The problem with this arrangement is that the lender expects the Swiss Franc to strengthen against the borrower's home currency. Thus, a British borrower will have to convert a larger number of £ in order to meet the interest payments on the Swiss Franc loan. This will undoubtedly more than offset the apparent saving due to the reduced interest rate.

Being aware of these relationships can help you to unravel the complexities of the different forms of currency risk. For example, suppose you have to deal with a German company that is considering selling a large consignment of goods to a Japanese customer for payment in Yen in two months' time. If the forward rate for converting Yen into Euros is lower than the current spot rate then the expectations theory suggests that the value of the Yen will probably fall as implied (it is, after all, an unbiased forecast made by financial institutions who will suffer at the hands of speculators if they get it wrong). The supplier should, at least, take this into account in setting prices.

Example – *drawn from CIMA paper P3*

Question 4 from the November 2006 paper is a very good example of a currency risk management decision. There was, however, one tricky but which lost several marks (as evidenced by the comments in the examiner's report).

The core of the question is that a UK company has invoiced a customer $1,800,000 US for settlement in three months' time. The question focuses on the currency risks associated with that payment.

The question gives the following figures:

- The current spot rate is $1.695/£
- A three month futures contract is quoted at $1.690/£
- A three month put option is available, which would give an exercise price of $1.675/£

The question goes on to ask about the actual £ receipts under certain circumstances and under certain risk management strategies.

The trickiest bit about this question is that it doesn't give the cost of buying the three month put option. Without that information it is impossible to give an accurate assessment of the cash flows associated with the option strategy.

The answer is to ask how much a rational market participant would charge, today, for the right to convert $ at a rate of $1.675/£. That participant "knows" that the best estimate of the exchange rate in three months is $1.690/£. If the participant agrees to buy $ at a rate of $1.675/£ then that will cost $0.015/$

(1.690 – 1.675 = 0.015). Thus, market forces should push the price of the option towards $0.015 per $.

This brings us a little closer to the cost of the option. The cost is $0.015 x 1,800,000 = $27,000. But we need to allow for two things before we establish the cost of the option:

- The $ cost has to be translated at the correct rate to give a value in £ (the company is based in the UK and works in Sterling).
- The option will have to be paid for now, but the customer's payment will be received in three months and so we need to adjust for the time value of money.

We can resolve both of these questions by using the exchange rate implied by the option ($1.675/£) to give $27,000 / 1.675 = £16,119. The international Fisher effect suggests that the future exchange rate takes some account of the time value of money involved in having invested the cost of the option for three months.

In reality, the cost of the option will be determined by market forces and there is no guarantee that the cost of the option will actually be as calculated above because of the effects of speculative pressures on some of the exchange rates and also because the person writing the option will need to make some profit. However, the examiner has exploited some of the relationships that should exist between rates in order to determine a realistic estimate from very little information.

If you wish, you can download the question and the examiner's comments in the post-exam guide from CIMA's web site.